SOVIET SCIENCE FICTION

by

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ABSTRACT

The purpose of this paper is to explore Soviet science fiction; that is, all science fiction published in Russia after 1917 to about 1967. The selection of literature from the 1960's was random; the selection from previous years was determined principally by its availability: about three-fourths of all the works examined belong to the last decade insofar as I can determine from publishing dates and critical sources; somewhat less than three-fourths of all the authors whose works were read wrote mainly in the post World War II era, and half of the novel-length works used in the preparation of the paper were published before World War II. It is impossible to ascertain if these proportions accurately reflect the varying production of science fiction during this period, but it is probably true that much more sf was published in the last decade in Russia than in previous years.

What are the themes with which the authors of science fiction are occupied? Have they changed since the 'twenties? How closely does science fiction resemble the rest of Soviet literature? Has it become, as American science fiction after World War II became, a vehicle for social criticism? It is

a rapidly growing body of literature that has just recently begun to attract serious consideration of its literary merits. It has a small but devoted audience. I intend to explain what this audience reads and evaluate the genre objectively and critically.

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SOVIET SCIENCE FICTION

CHAPTER I

DEFINITION

Space-ships, robots, ray-guns, monsters, aliens, spacemen, "mad" scientists, Mars, Venus, the Moon, interplanetary, interstellar, the weird, the strange, the fantastic--these are a part of the bizarre collage that may be suggested by the term "science fiction" (sf). It is a literature of realism, adventure, humor and romance. It is laced with real and imaginative science. It often borders on fantasy and mingles with the latter in a genre-jungle of "science fantasy" in which the role of science is very distorted and illusory.

In Russia the term sf [*nauchnaya fiktsiya*] is generally not applied to the subject of this paper. Instead, under the heading *nauchnaya fantastika* [science fantasy], a very heterogeneous collection of works is filed which includes Gorky's "Rasskaz o romane," A. Tolstoy's *Aelita*, and *Reports from the 21st Century* by M. Vassil'yev and S. Gushchev. In America such a grouping would include the "ring" trilogy of Tolkien Asimov's *I, Robot* and *Scientific American*. The last examples in both cases should not be classified as sf at all, while the first are examples of science fantasy.[1]

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[1]While little argument should arise over excluding *Scientific American* from the genre, a number of American critics and editors would disagree with the separation of sf from science fantasy. Judith Merril, who has edited a number of sf anthologies, frequently includes fantasy works which I would exclude from the category of sf. Anthologies of the

In Russia the problem of defining sf is complicated by those critics and writers who accept the genre as worthwhile and valuable insofar as it provides a popular medium for stimulating interest among readers (especially youth) toward science and technology; sf, or *nauchnaya fantastika,* should educate rather than merely titillate. This attitude compounds the confusion between sf and fantasy and increases the difficulty of distinguishing genuine sf.

I have arbitrarily defined sf for this paper by demanding that for a work of fiction to be included in the bibliography it must contain an easily observable element of science or technology of the present or future and deal with a different time-period than that in which the author wrote. Let me immediately qualify these conditions by stating that the operation of science in the story may be achieved by the "presence" of a "scientific method" and that the time-period may differ only in technological terms. For example, Obruchev's *Plutoniya* describes a trip by twentieth century explorers into a forgotten land in which dinosaurs roam; in the text and in a number of footnotes, accurate information about the world of the past is conveyed to the reader. *Pryzhok v bessmertie* by Zagdansky is sf only by virtue of the plot's use of a definite method for obtaining immortality.

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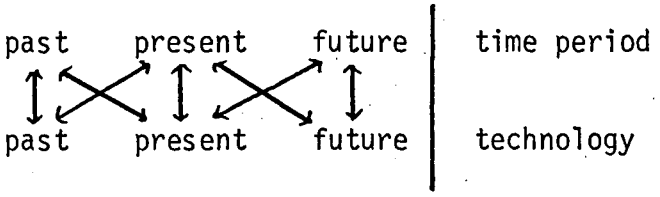
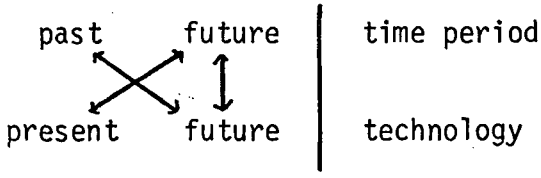
works of one author often include such stories; for example, *6xH* by Robert Heinlein, a well-known sf author, includes two pieces, "Kitten" and "The Man Who Traveled in Elephants," which are not other than fantasy by my definition. The distinction between sf and science fantasy (or fantasy) is difficult to establish, and I doubt that any two sf critics or readers would agree on the categorization of all stories set before them into sf and non-sf.

The arrows in the paradigm below represent the possible relationships between the time-setting of any plot and the technology of any plot:



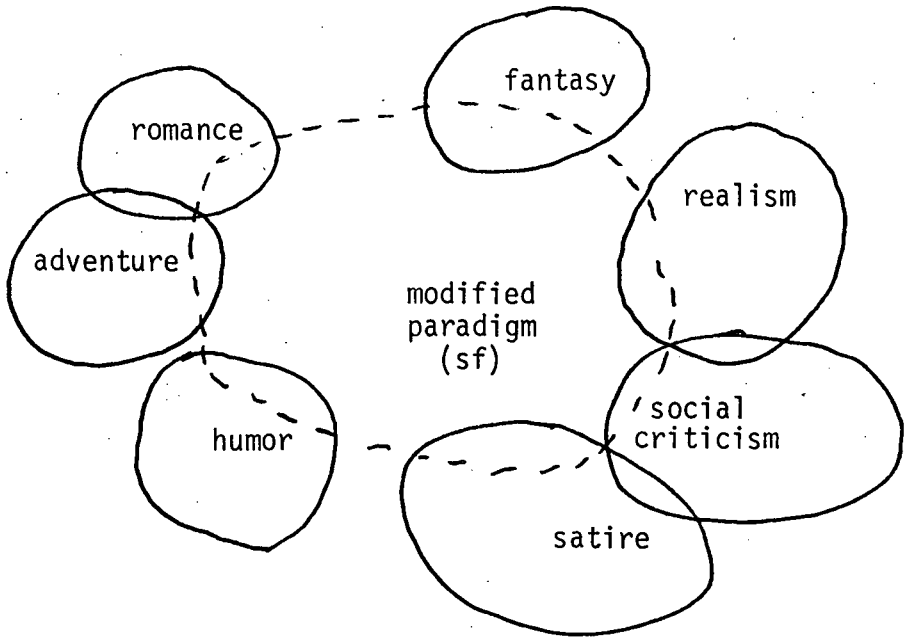
Modified by my definition, this becomes



The most common type of sf story is a future-future relationship, but time-travel frequently uses a past plot-future technology relation, and a future plot-present technology may be found in stories like *The Space Merchant* by Pohl and Kornbluth. A past time-present technology link is not provided, for while it may be possible, it seems implausible, and I have not encountered such a situation. The requirements of time and technology are the two most important aspects of sf. By limiting my selection to those works in which the author clearly removes the plot action from the indefinite present, I have included not all those stories which may be regarded as sf by different critics, but I have included all those stories which are definitely sf.

In this sense I have established a set of sf for this paper; it does not include every story in every book that is labelled sf, but those it does include are indisputably sf. It composes a set which takes from

other sets stories which may be represented by the modified paradigm; in pictorial form it is:



In a "universe" of titles there are groupings or "sets" of satirical works, realistic works, etc. One could introduce other sets than those represented above, but the principle demonstrated would remain the same. Although the diagram is extremely simplified, it projects the principle of overlapping sets which dictated in part the topical approach used in this paper. All the literature included within the set of my definition, indicated by the broken line, may be expressed in mathematical notation as:

$$SF = \{a \mid (a \varepsilon \underline{md}) \Lambda [(a \varepsilon \underline{rom}) V (a \varepsilon \underline{adv}) V (a \varepsilon \underline{hum}) \ldots V (a \varepsilon \underline{fan})]\}^{1}$$

The term sf includes a title a such that a is a point in my definition and a is a point in the set of romance or adventure or humor . . .

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[1] "ε" means "included in," "Λ" means "and," "V" means "and/or."

or fantasy. The point a can be in more than one of the sets of romance, adventure, etc., but it *must* be also in the set of my definition; that is, the modified paradigm of sf represented above. For example, Tolstoy's *Aelita* belongs in the set of the modified paradigm of my definition and in the set of romance. All elements a which are included in the annotated bibliography satisfy the requirements of the equation and the paradigm used in the equation. American sf used in the main body of the paper does as well.

I have rejected from review in this paper a number of works, which are labelled as *nauchnaya fantastika* by Soviet editors and critics, such as the works of A. Grin and B. Kaverin. These are rich in fantasy, but not in science. My definition of sf would encompass a fantasy or a fairy tale only if these were to use some element of real or imaginative science. If the fair prince in "Snow White and the Seven Dwarfs" were to be replaced by a twentieth-century psychologist riding a syllogismobile into Disney's film world, the tale might qualify as sf.[2] Fantasy must be provided with a scientific or technological explanation to become sf.

My definition accepts all stories that are not set in the author's present and do contain recognizable sf technology--including several works that may not seem to be sf, such as the novels of Granin and

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[2]A "syllogismobile" is a pseudo-mathematical sf device used by characters in *The Incomplete Enchanter* by Pratt and DeCamp to travel from "reality" into the fictional worlds from which authors compose their stories. It is similar to "travel" into other dimensions (*infra*, pp. 27-28).

Dudintsev and two plays by Mayakovsky. The plots of each novel, however (*Those Who Seek* and *I Will Go to the Storm* by Granin and *Not by Bread Alone* by Dudintsev), use technology or science to place their time-settings in the future. *Those Who Seek* revolves about the development of a tracer, operating by some kind of radar-waves, to discover breaks in underground electric cables; *I Will Go to the Storm* describes the struggle of young Russian scientists to control weather; *Not by Bread Alone* is based on the discovery and development of a futuristic metal-working process. Each plot is set in a technological future. Similarly, Mayakovsky's "The Bathhouse" and "The Bedbug" use time travel to connect the present and future. Comments about the above works and about the works of other authors (Zamiatin, Bulgakov, etc.) whose writings are for the most part *not* sf are made only within the context of my definition.

The limitation of the application of the descriptive term sf to those works in which the author clearly removes the plot action at least partially from the indefinite present (technologically or chronologically) explains the exclusion of the Soviet industrial novel spawned by the five year plans. These productions are not sf because their plots are set in the indefinite present. Kataev's *Forward, Time* revolves about increasing the production of concrete in a given time period through the more efficient use of labor-time. There is no advance in technology or science in the crude improvements to the process of mixing concrete. Moreover, Kataev is describing the present. His novel is a fictional glorification of Soviet know-how, a fictional counterpart to Agapov's book *Technical Stories* which is essentially popular science.[3]

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[3] *Infra*, p. 53.

Rigorously applied, my definition would accept a story like Leonov's *Skutarevsky* which uses a technological future, but I have not included this novel in the bibliography because the sf element within it is very undeveloped compared to the important position occupied by sf within the novels of Granin and Dudintsev. *Skutarevsky* is not a good example of sf.

Leonov's *Road to the Ocean*, although it contains passages set in a chronological future, is not acceptable to my equation because the vehicle the author uses to insert the short passages into the text is a fantastic device, a series of recurring dreams or visions appearing to a dying Communist. The sf element within it thus becomes fantasy. Only if Leonov had posited a "time-machine" to convey the Communist to the future, could the novel be regarded as sf.

I have selected five aspects of sf which I consider most important, both from a statistical position (their frequency of appearance in sf) and a thematic viewpoint (their importance to the meaning of sf), as the titles to the next five chapters. The last chapter, the annotated bibliography, contains additional material about Soviet authors and specific stories.

American sf is used here primarily to illuminate certain features of Soviet sf. It is a device extending perspective; it is not intended as part of a comparative study of Soviet and American sf.

CHAPTER II

EROTICA

The most obvious feature of heterosexual relations (there is no abnormal sexual behavior) in Soviet sf is the absence of such. In less than twenty per cent of the stories employed in this paper do the characters enjoy a significant amount of sex or love, a somewhat lower proportion than in American sf.

In most of these stories, sex and/or love participates in the plot in a negative procedure that obstructs the protagonist. Profound heterosexual relations become inimical to science or progress and, depending upon the author's point of view, are either to be valued or to be disdained.

In "Razgovor chuzhoy ten'yu" ["Conversation with an Alien Shadow"] (1963) by Dneprov, two scientists argue about the possibility of reproducing a mechanical model of the human soul. The main character, who opposes the idea, later falls in love with a pretty laboratory assistant and plays a tortuous game of love ("She loves me; she loves me not"). While he is sitting on a park bench, waiting for her one evening, he falls asleep and dreams that she comes to him, that he tells her he loves her and that she begins to back away from him. Suddenly the scientist who had proposed constructing a mechanical soul springs out of the bushes and reveals that the girl is actually a robot and that she is being tested to explore the capacity of her programmed emotional reactions. At this point our here is awakened by the girl and is greatly relieved, for the

dream had been so real. Dneprov is not quite finished, however, the concluding line of the story does not completely satisfy the reader that the girl is not a robot. The reader is left "hanging" with the hero.

This is a well-written example of the use of sex in most of those stories in which it is important. It is amusing, no doubt, but it is also potentially very sad. The scientist's love is a source of discomfort and is possibly painfully ludicrous. Although it occupies a negative position in the action, Dneprov obviously wants us to consider the implications of the effect of progress on human values. The scientist's love is a source of conflict, but it is also very real and profound.

Some stories present love in a positive sense which does not spawn conflict or traumas for the protagonist. In A. Tolstoy's *Aelita* (1922) the relationship between Aelita, a descendant of the dying ruling caste of Mars and Los', a Soviet inventor, a symbol of proletarian power and social mobility, is a truly charming and delightful and exciting romance with no internal disharmonies or doubts. It is a creative love story which links two cultures. It is also the binding element of the novel that makes it more than a blasé adventure story of an aborted Communist revolution on Mars.

In a very few stories love is a complex factor which becomes the *raison d'etre* for the action, the clockspring upon which the plot unwinds. If in *Aelita* it provides a link between scenes, in O. Larionova's *Leopard s vershiny Kilimandzharo* [*Leopard from the Heights of Kilimanjaro*] (1965) it is the dramatic source: the main character, Ramon, is rescued after drifting for years in a space-ship; he can think of nothing but

recovering his health and seeing the woman he once loved, Sana. When she appears, he discovers he still loves her and that she loves him. They live happily, for a time, but Ramon is restless, and, eventually, he meets another woman, younger, to whom he is intensely attracted--so much so that he neglects his work and Sana (who still loves him) to spend time with her. Unfortunately, she perishes in an accident, trying to rescue mountain climbers. Her death supposedly teaches Ramon about fighting and struggling for life, but the story's motor, which is the love triangle, does not falter even on this steep uphill road of didactic moralism the author has constructed for the reader's edification.

The three stories cited above represent only that portion of stories in which love is an integral part; it is difficult to escape the impression that most stories which use love use it superficially to decorate a narrative. In A. Belyaev's *Zvezda KETs* [*Star KETs*] (1936), a young Russian technician, Artem'yev, is enamoured of a pretty female technician, Tonya; she entices him to sign up for a period of service on a space station (contrary to his unadventurous, Earth-bound habits). As soon as they arrive at the station, Tonya is dropped from the narrative which henceforth relates the amazing feats of technology Artem'yev witnesses and the adventures in which he becomes involved. At the very end of the novel, Tonya appears again, and Artem'yev realizes he has won her love. An epilogue shows them happily married and busy with their careers in separate scientific fields.

Love is more important in Belyaev's *Golova Professora Douelya* [*The Head of Professor Doyle*] (1925) where it perishes in a grotesque

melodrama which reduces a girl to a living severed head, the subject of a power-hungry scientist's experiment, but it is still a side-issue. It is no more important in Belyaev's *Amphibian* (1928), a tragedy of love that cannot be completed between a character who breathes through gills and a normal woman. The tragedy is not very pointed, and the course of their love merely illustrates the Amphibian's problems.

Similarly, in Obruchev's popular *Sannikov Land* (1925) is found a "primitive" love affair: one of the members of a scientific expedition to this unknown land, where primitive peoples and primeval flora and fauna still flourish, falls in love with a maiden of one of the local tribes and takes her with him when the expedition leaves. This romance is even less important to the plot than that in *Zvezda KETs*.

Despite the non-essential part romance plays in these stories, it offers some passion to the reader. Teo Eli's *Dolina novoy zhizni* [Valley of New Life] (1928) presents a heroine whose involvement with three men furnishes a thread of continuity and symbolizes the conflict between the three; yet, there is no love between her and any of the men, except in an unrequited, impotent sense. There is no passion like that between Aelita and Los', nor even as between Artem'yev and Tonya.

Gennady Gor, a much published sf author, treads a middle path, if that is possible, in his use of love: in "Strannik i vremya" ["A Stranger and Time"] (1962) a young scientist's wife leaves on a star-trip from which she will return in three centuries. The husband passes the time in "frozen sleep" and wakes just before she returns; he meets an attractive woman but refuses to become involved with her, remaining loyal to his wife.

In the horribly complex plot of Gor's "Uera," (1964) the love that three men bear for Eroya unifies part of the story: her husband and another man, marooned on a satellite, worship a small box into which has been distilled her personality--a box that talks and listens and does not know it is a box and a copy of another personality. Meanwhile, back on the planet Dil'neya, the real Eroya is pursued unsuccessfully by another man. Two other main characters have no contact with her. The love relationship involves only two-thirds of the characters.

In the other stories by Gor in the bibliography a like use of love may be found--a somewhat passionate, but by no means dominating, entanglement of characters, a Soviet Golden Mean. The bibliography contains stories by only five authors who have the temerity to abandon that limitation: Dneprov, Larionova, Kazakova, Yemtsev and Parnov (only two stories by the last three). The most intense involvements of love may be found among the works of Dneprov, one of which has been mentioned above. Another, "Lyudvig," (1968) is perhaps the most romantic creation of all; it is a classic, tender, poignant description of the unrequited love of a young technician for a girl who is betrothed to a colonist on the Moon. The young technician is heart-broken when she leaves for the Moon and entrusts his grief to a very old computer, affectionately named "Lyudvig" by the staff of the base where our hero works. The computer suggests a farewell message for the young man to send to the girl. It is a five-minute musical selection which the young man later discovers is from the "Moonlight Sonata."

A third story by Dneprov which is not as intense as "Lyudvig,"

but which is better sf is "Tam, gde konchaetsya reka" ["There, Where the River Ends"] (1966). In it an experiment is conducted by a scientific institute which permits a young man to study "reruns" of events. As "Lyudvig," it is written in the first person.

> I am convinced that of all the most incomprehensible and secret things in the world the most incomprehensible and secret is a watch. . . . The secret of this instrument lies in its simplicity. Just think; all the events in the universe depend on the angle between the large and small hands![1]

Recognizing the exaggeration, the character adds that the watch is only an indicator, but

> Surely, it is not for nothing that when the hands come together, when the wheels and springs set them so that the time is called 5:30, the person for whom I wait will appear on the opposite end of the bridge. It is like a law. Like inevitable fate. Like the flash of a star in a distant galaxy.[2]

Dneprov transfers the reader's attention from the experiment to the person expected to appear on the bridge, simultaneously blending the personal and temporary into the universal and eternal. The main character is waiting for a woman who walks past him on a bridge every day at 5:30 P.M. Today, the day before the experiment, she stops and asks him the time, and he asks if he may accompany her home. The next day, at the moment the experiment begins, he meets her again and begins to walk home with her. Suddenly, time is reversed, and he meets her again . . . and again . . . and again.

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[1]Dneprov, "Tam gde konchaetsya veka," *Fantastika 1966*, part 2 (Moscow: Molodaya gvardiya, 1966), p. 133.

[2]*Ibid.*, p. 134. Actually, the time would be 5:27.

During each rerun events do not follow exactly the same track. The young man notes the differences and begins to alter the course of events to his advantage; that is, toward improving his relationship with the girl during each sequence. Towards the end of the experiment, they have made their way to a lake, where the girl lies on the ground, her head on his lap, and . . . they are both hurrying to the bridge again to meet at 5:30. On the last page our hero has decided what he must do for the last sequence:

> "I'm not late?" she asked [again] a bit breathlessly.
> "No."
> In that moment I heard a click in my knapsack. Now everything was as it should be. I pulled her to me and kissed her.[3]

This story is good sf. In a very original manner the old problem of love and wooing is related to and improved by the progress of technology. While other stories, like "Lyudvig" and "Razgovor s chuzhoy ten'yu," have duplicated this involvement of the individual with science, they have not delved into the larger abstractions of "what makes things tick." It is the added consideration in "Tam" of the operation of cause and effect, of the personal intertwining with the universal, which permits the story to be described as one of the most perfect pieces of sf I have read in either Soviet or American sf.

Sex, or the physical manifestation of love and its passion, appears even less frequently on the pages of sf than the thought "ya lyublyu tebya" ["I love you"]. Certainly, in Soviet sf one will not be

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[3]Dneprov, *op. cit.*, p. 149.

confronted by anything as vulgar as the lust which arises in American sf:

> . . . she drew him down on the bed nailed fingers clawing away his shirt digging into bare back flesh . . . they were naked together. . . . Barron . . . saw nipples-breasts-belly-navel-crotch simple . . . woman's body, warm, soft, well-turned . . .[4]

Sexual intercourse is not all that common in American sf, but it can be found by a determined seeker. The act of sex, as divorced from love, is depicted with more candor in American sf than in Soviet sf where it does not extend past a touching of lips, occasionally with an ocean scene substituting for orgasm.

Two young students in *Na prozrachnoy planete* [*On a Transparent Planet*] by Gurevich (1963) participate in a geology expedition. The boy is greatly attracted to the girl who is not unreceptive to him. The climax to their rather subdued love-making comes at the end of the expedition:

> "Let's both go to the ocean [to work]. We'll ask to be sent together. O.K.?"
> "O.K." . . . [the girl replies].
> "Really?"
> "Really."
> Like a man, Yelena firmly shook her comrade's hand.[5]

Sex! Soviet-style! In Gor's "Strannik i vremya" the night before the main character is about to begin three centuries of frozen sleep, he wanders around Moscow, picks up a girl and takes her to dinner. Before he bids her farewell:

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[4]N. Spinrad, *Bug Jack Barron* (New York: Avon Books, 1969), p. 41.

[5]G. I. Gurevich, *Na prozrachnoy planete* (Moscow: Gosizdatelstvo geograficheskoy literatury, 1963), p. 130.

> I looked at my watch. I had to leave.
> "Goodbye, Valya," - I said to the girl. - "Goodbye."
> I kissed her firmly. I heard how her heart beat. Then I turned sharply and strode away.[6]

Everyone knows that a good red-blooded American male would not be satisfied by a handshake or a kiss, even if the lady is. "God has a very big heart, but there is one sin he will not forgive: if a woman calls a man to her bed, and he will not go. I know because a very wise old Turk told me so."[7] Valya's desire is obvious; the main character of "Strannik" must be a boor. Worse than this, the Soviets insist on transferring their social literary inhibitions to Americans via sf *plakat*-literature such as *Pryzhok v bessmertie* [*Jump Into Immortality*] by Zagdansky (1963) in which a young scientist, Maikl, loves a beautiful girl, Medzh, who not only does not love him but uses him for her own ends and "leads him on." Sex rears its ugly head (which has been defanged) in the following:

> Seldom had Medzh regarded Maikl with such a peaceful, happy glance. She reached the stone first, stretched her hand to the youth and helped him up beside her. It seemed to Maikl that these were the best minutes of his life.[8]

Compared to this puritanism, the cult of body-worship to be found in the utopia of Yefremov's *Andromeda* (1957) seems licentious. The author several times describes the body beautifuls of the future who

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[6]G. Gor, "Strannik i vremya," *Fantastika 1962* (Moscow: Molodaya gvardiya, 1962), p. 117.

[7]From the film "Zorba the Greek."

[8]Ye. P. Zagdansky, *Pryzhok v bessmertie* (Kiev: Molod', 1963), p. 102.

disrobe in public (on the beach, etc.). The public admires bodies not with lust, however, but with aesthetic appreciation. People of the thirtieth century are so naturally pure and chaste that even sex has become beautiful, and in this most unprurient context is set the most tempestuous, provocative love-making in the Soviet bibliography:

> Mven Mas turned over to swim further and shouted in amazement. The startling transparency of the sea, . . . here, away from the shore, became even greater. He and Chara seemed to be floating at a head-whirling height over the bottom, . . . Mven Mas thrust himself towards Chara, whispering her name and reading a fervent answer in her clear, courageous eyes. Their hands and lips met over the crystal gulf.[9]

One reason for the dearth of romance and/or eroticism in Soviet sf could be, and probably is, that it is difficult to write well about love, regardless of the writer's genre, but would an incompetent author exclude a poorly-done love episode from the rest of his poorly-written creation? If adventure and juvenile literature (which form part of sf) in general lacks meaningful love or sex, have those sf authors whose fiction is intended for a juvenile market used a placebo such as adventure for love? If so, why?

Many Soviet sf critics have regarded the genre principally as an educational device; that is, as fictionalized popular science literature aimed at informing the reader of scientific achievements and encouraging him towards technical education or creation or at least an appreciation of same. Furthermore, they intend that as "engineers of the human

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[9] I. A. Yefremov, *Tumannost' Andromedy* (Moscow: Molodaya Gvardiya, 1960), p. 268.

spirit" all Soviet sf authors should instill a moral lesson into their works. Perhaps these Soviet critics feel romantic themes would hinder the communication of science and morals to the reader. Because an sf milieu lends itself particularly to interpreting the future and "engineering" characters without the limitations imposed by ordinary realist literature, sf, to a Western critic, may be the highest form of socialist-realism: an author's conception of what human beings should be is limited only by his imagination and Communism's theoretic Judeo-Christian-Marxian ethic. To Soviet critics, however, authors' hypotheses of future reality are an "extra-legal" quality which must not deviate from Party planning and mores.

The non-Soviet reader may assert that these guidelines, emphasizing content rather than style, allow a great mountain of material to be published which is artistically mediocre. No Soviet reviewer will deny that there is a large amount of badly-written sf printed in the USSR. Yet, there is a significant quantity of well-done Soviet sf appearing which does not avoid moral didacticism, though it may not heed the informational demand.

I will define an artistically "good" story as one whose characters are generally neither completely white nor black and are sufficiently plastic to be more real than the man on the sidewalk outside my window and whose plot and theme is consonant with the abilities of the characters. Most good sf, like good realistic literature, remains "true to life" in the details of human nature. Too much human engineering as in Yefremov's *Andromeda* threatens the believability and effectiveness of sf,

for, while it is easy to appreciate and accept evil, it is even easier to doubt virtue. Father Zossima, thus, becomes "unplastic" when compared to Fyodor Karamazov, and the flawed character of Drozdov in Dudintsev's *Ne khlebom yedinom* [*Not by Bread Alone*] (1956) seems much more real and *human* than that of the hero.

A complex villain is more enjoyable than a morally good character who, while involved in numerous, varied episodes, retains throughout the same mental and facial expression. The latter may be (and is, in the Soviet context) helpful to the working out of a morality play but not to a narrative which pretends to use the elements of good fiction sketched above. Socialist-realism begins to abandon sf when it begins to include through human engineering the genre of fantasy, for, while fantasy can be transformed into sf by the adaption of space-ships or time-machines or syllogismobiles, the product will have more in common with poorly-done sf which uses black-and-white, good-and-evil caricatures appropriate for fantasy but hackneyed for sf.

While the Soviet press has frequently defined the value of sf in educational and moral terms rather than by the criterion of artistic achievement, complaints have arisen in the press about the artistic failure of sf. Utilitarian Zhdanovism and its opponents wage a ceaseless struggle over the Soviet literary scene, with the Zhdanovites usually winning, but never for long. Sf, because it is ignored by most critics and has a relatively small readership, is often able to go its own way and produces not only the ultimate in human engineering, Yefremov's *Andromeda,* but also a fair amount of social criticism such as *Iskateli*

[Those Who Seek] (1953) *Ne khlebom yedinom* and *Idu na grozu* [*I Will Go to the Storm*] (1963) by Granin and Dudintsev, not to mention "Banya" ["The Bathhouse"] (1930) and "Klop" ["The Bedbug"] (1928) by Mayakovsky. The latter acquire upon publication a much larger readership than the normal sf audience, but it is significant that their authors chose to write within the genre of sf, which has acquired a sort of extra-legal character because of its removal from immediate reality.

These protest works could not all be included among the artistically superior stories of the bibliography (about one-tenth).[10]

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[10]The consumer's, or sf fan's, evaluation has been excluded because little indication of his likes and dislikes is available. V. Savchenko's article in *Fantastika 1967* devoted several pages to collating responses to a survey the annual sent out the year before to readers of sf, but the response was statistically small (112 replies), revealing only that the average respondent was a male, fifteen to twenty-five years old with an education higher than average.

The replies to two of the questions may be relevant, however: "Schitaete li Vy khudozhestvennye dostoinstvo glavnym v fantastike? Yesli net, to chto, po vashemu mneniyu, yavlyaetsya v ney glavnym (idei, zanimatel'nost', syuzheta i t. d.)?" The replies mostly stressed the importance of the idea, though the one Savchenko apparently liked was: " . . . glavnoe v fantastike - yeyo pravdivost', osnovannaya na izuchenii zhizni, yeyo zakonov. . . . Eto ne oznachaet otkhod s pozitsiy fantastiki, no budet men'she rabot s absolyutno bezzhiznnymi, nadumannymi situatsiyami . . . " (pp. 402-403)." To the second question: "Kakie proizvedeniya sovremennikh pisateley-fantastov Vam nravyatsya?" the replies named the works of the Strugatskys and Yefremov as first choices and followed with Dneprov, Parnov, Yemtsev, Varshavsky and also Gansovsky, Larionova, Gurevich and Al'tov.

Also in *Fantastika 1967* was presented a survey taken by an sf fan club during January-March, 1967 which uses a large enough base sampling to be regarded as statistically significant. The divisions of the sampling: 304 university students, 215 scientific workers, 185 high school students, 36 sf writers and 33 critics. The last four groups selected as favorite authors: Lem (a Polish writer), the Strugatsky's, Bradbury, Azimov and Sheckly (all Americans). Bradbury was the first choice of the critics. The replies to the survey were summarized: "chitateli

Most of the latter are concerned with defining the relation of people to science or society or themselves, and most of *this* group is found among those stories which contain some variation on a love theme. The three stories by Dneprov, discussed above, are good stories which may satisfy the guideline for human engineering if the guideline emphasizes recognition of the value of individual emotions. Of course, sentimentalism could be attacked as "bourgeois backsliding," and the perspective of socialist-realism might reveal the intellectual bankruptcy of those intellectuals who fear progress in "Razgovor chuzhoy ten'yu."

One love story which may satisfy the demands of critics to education or morality is Larionova's *Leopard c vershiny Kilimandzharo;* retaining a love triangle as the action vehicle, it nevertheless conveys an undoubtedly more officially satisfactory moral lesson than Dneprov's works: A young cosmonaut, Ramon, is rescued after drifting in a space ship for eleven years. The rest of the crew perished. He is returned

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priznayut i privetsvuyut umnuyu, sovremennuyu, ostro-sotsial'nuyu fantastiku i reshitel'no otvergayut remeslenicheskie poddelki pod yeyo, kotorye, k sozhaleniyu, yeshcho vstrechayutsya v nashey literature." (p. 410)

Though it would be difficult to prove, it does seem that Soviet sf offers less opiate-escapist literature than American sf which is all but buried in a morass of drug-store epics which are designed, like contemporary television productions, to desensitize the consumer with bland and repetitive creations, short-circuiting critical faculties. This is harsh criticism, but there is a lot of sf being printed and not very many good sf authors.

Even Soviet critics who like sf may regard it as light reading. D. Frank-Kamenetsky in 17 September, 1969 of *Literaturnaya Gazeta:* "chitatelyu v poiskakh ostrogo syuzheta prikhodyatsya obrashchat'sya libo k detektivu, libo k fantastike." Sf is a more uplifting entertainment than a detective novel. When a piece of sf appears that is really good--everyone forgets it is sf.

to Earth by a group which includes his old girl friend, Sana, who he still loves and who still loves him, as he soon discovers. During his absence, a robot star-ship was launched from Earth with a speed greater than light, but, rather than travelling through space, it travelled in time to visit Earth a few years in the future. It scanned the planet with its cameras and returned to the Earth from which it departed with records of the year of death for all the inhabitants of the planet. This information transformed the lives of all: people slept less and worked harder and longer each day, accelerating the pace of life. Anthropoid robots were used so extensively they came to be regarded as sentient creatures as they replaced people in all menial forms of labor. To this quickened life Ramon had to adjust, and he did not do it easily.

He and Sana were bound by love; that it was her year to die intensified his affection, and he tried to make her life pleasant, but he was restless and met a young girl, Ill'. Sana remained in love with him though she soon learned of Ill'. Ramon loved both, though Ill' more passionately.

Ill' concealed from him that it was also her year to die. Ramon was told after her death that she perished trying to save a mountain climber. She did not die resignedly; she struggled to live for as long as she could--proving the moral of the story which had been introduced earlier when Ill' had shown him a sculpture entitled "Leopard s vershiny Kilimandzharo" which depicted a leopard in death agony trying to crawl up a cliff. Ramon had asked her if she could accept a man coming to the mountain (where she worked as a member of a life-saving team) to

die knowing it was his time to die. She replied:

> I don't understand you. Can a man who has little time remaining to him waste it to die in an exotic situation? He should better live out these last days as befits a man and try to die so that death will not be his last pleasure, but his last business.[11]

Up to the moment of Ill''s death, Ramon had refused to learn the date of his own death; at the end of the story, he decides to visit the archive where the information is kept. Thus, Larionova conveys the message which she has integrated into the description of Ramon's immaturity, Sana's passive but possessive love and Ill''s adolescent love and maturity. Ramon's social disorientation and ignorance of himself is effectively presented. The shock of Ill''s death orients him, shows him "what is to be done."

The story is artistically successful. Once, when Ramon leaves Sana to see Ill', Sana "sacrifices" herself:

> . . . go to the mountains; I will wait for you. . . .
> I knew I should go to her, fall dramatically to my knees . . . and swear not to leave her. . . .
> I flew out of the house. . . . Who would have believed me after all this that I still loved her. I don't believe it. But I do love her. To tell her would be useless because she would take it only as comforting, but I simply can't think of anything else right now. . . . Because I love her now.[12]

The author has not avoided the obligation of correct human engineering while writing a fairly good piece of sf which contains particles

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[11] O. Larionova, *Leopard s vershiny Kilimandzharo, Al'manakh Nauchnoy Fantastiki*, vyp. 3 (Moscow: Znanie, 1965), p. 107.

[12] *Ibid.*, p. 97.

of insight, however trite the language may be in which they are expressed. It is one of the very best compromises in the Soviet sf I have read between art, sf and didactic moralism.

Must there always be a compromise? Cannot an artistically superior sf story be published which would satisfy the most ideologically oriented critic?

"Eksperiment" ["The Experiment"] by Kazakova is a very sentimental short story opposed to the progress that is taken for granted in *Leopard*. Its theme resembles Dneprov's "Razgovor." A female laboratory director, Mar'yana, is approached by a young scientist, Arkady, with a plan for a dangerous experiment. She refuses to allow it, and he leaves. She sees him on subsequent occasions and feels attracted to him. He does not avoid her, but neither does he seek her company. She begins to feel love for him and calls him to her office to suggest his project could be reconsidered. Arkady becomes very excited, and she learns she has been the unconscious subject of an experiment in dream-influence. Arkady thanks her for "participating" and leaves. "When the door closed after Arkady, Mar'yana began to swear quite coarsely."[13]

Artificially stimulated love! Could the author better disclose her antipathy toward the destruction of human values by technology? The story might be successful in terms of art and sf, but the moral it offers could hardly be acceptable in a society trying very hard to industrialize.

Erotica in the plots of Dneprov or Kazakova becomes most of the

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[13]R. Kazakova, "Eksperiment," *Fantastika 1965*, part 3 (Moscow: Molodaya gvardiya, 1965), p. 143.

time a meaningful but negative factor. Rarely does it operate positively as does Ill''s unselfish, mature love in *Leopard*, and most authors avoid it entirely or handle it as Kol'tsov did in "Chyornyy svet" ["Black Light"] (1964) a story set in the distant future when such anomalies as inherited memory, dedication to science and learning and a humane society exist. The only conflict in this otherwise placid utopia arises from the hero temporarily foregoing the passions of love to participate in an important experiment. A description of the passion: he and a young girl wander about in a park; they stop;

> Yevito felt awkward, and she blushed. . . . They looked around, like conspirators, not deciding to meet each other's eyes. Dant took off his white shirt, spread it on the grass and lay down. And she gathered flowers while humming a song.[14]

It this were not Soviet fiction, the flowers could at least be understood symbolically, but it is doubtful communist puritanism will allow even that. Eroticism is handled here, as in most Soviet sf, so timidly and innocuously that it adds only sterility to the story.

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[14]A. Kol'tsov, "Chyornyy svet," *Luchshiy iz Mirov* (Moscow: Molodaya Gvardiya, 1964), pp. 105-106.

CHAPTER III

ROCKETS, ROBOTS AND RAY-GUNS

By definition, all the works examined in this paper contain some application of science woven into the plot and affecting the story if only in a minor fashion; for example, the space-ship in Tolstoy's *Aelita* which transports cosmonauts between Earth and Mars. Only about a third of the stories in the bibliography use technology as a very important part of the action as in the Strugatskys' "Spontaneous Reflex" in which the main character is URM, a universal-robot-machine designed for extra-terrestrial exploration. It is a powerful, steel, man-like creature with its own electronic brain capable of dealing with unusual situations; it is not programmed but instead is provided with a curiosity drive to fill its empty record-cells. One day while its master--the scientist who is working on it--is absent, this curiosity drive compels URM to leave the laboratory (which bores him) to investigate what is outside the door.

He wanders around the building, investigating everything, wreaking havoc and frightening a lovely maiden who escapes to warn everyone that URM is loose. Finally, URM leaves the building and the whole scientific compound, to travel toward a town not far away. Just in time the "master" arrives with men and bulldozers and disconnects the metal monster.

Technology is anthropomorphosized in few stories. A more common example of those stories in which it is very important is "Plata za

vozvrashchenie" ["Payment for Return"] (1967) by Shcherbakov: the equation

$$\text{mass} = \frac{\text{velocity}}{\text{weight}}$$

is used to describe the effect of velocity close to the speed of light on an inter-stellar ship which condenses to such a size that the vessel enters an atom-universe.[1] It escapes by again accelerating and growing larger because the electric charge of the atom universe is the opposite of our's (which originally caused the vessel to shrink).

Of course, the science used above is a particular kind of science; that is, fictional science which may be based on science that we know, but which always anticipates it. The equation used in "Plata" to describe the space-ship's flight is more like

$$\text{mass} = \frac{\text{velocity}}{\text{weight}} \times \pm 1,$$

the last part corresponding to the appropriate value of a particular universe.

The use of futuristic technology and investigation of the unknown were the most titillating facets of modern sf till the 'forties and 'fifties. Exploration of the unknown is not so important to contemporary sf, but it was the subject of the direct ancestors of modern sf, such as Verne's *Off on a Comet* and *Journey to the Center of the Earth.* Such

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[1]This is a common bit of sf science which postulates that all the atoms of our universe are miniature universes which contain their own atoms which are also universes, and that our universe is an atom in a larger universe, and so on, ad infinitum.

tales of the unknown are produced today, but they are very different from Verne's. Mutated technology was the basis of *20,000 Leagues under the Sea, From the Earth to the Moon and a Trip Around It,* and it still is the foundation of sf despite the current popularity of devising future social systems rather than space-vehicles.

One of the most popular examples of sf science is time-travel, usually achieved by a machine carrying a pilot or passenger forward or back in the "temporal stream." The device in Well's *The Time Machine* became the prototype of subsequent time-vehicles in US sf and was used either to travel into the "future" from "now" or to travel from the future to now. In either instance, the trips are easily and frequently used to criticize social trends or problems of contemporary society. *First Through Time* by Rex Gordon is an adventure novel describing a trip by an American military officer into the future which the author uses to criticize the "security" neuroses that surround scientific development in America. The extreme specialization of scientists in the plot produces a potential catastrophe which is averted at the last moment by the officer's return from a future Earth devasted by a gigantic nuclear chain-reaction.

It is a moot point whether time-travel is even possible by means other than utilizing enormous velocities obtainable in space-craft which would presumably slow down relative time for the crew so that it would live much more slowly relative to Earth's time. Travelling at the speed of light, one would not age, while the Earth would grow older; this, if it were true, would be a one-way ticket only. Time travel from now to

then and back again must remain plausible only for sf writers using a weird conglomeration of machinery.

In Gordon's novel, the main character is placed in a sphere with its own life-support-system and bombarded by a tremendously powerful nuclear-particle accelerator. Soviet sf generally uses more primitive equipment based on Wells' design, an electronic saw-horse with knobs and switches and a hoop around it as in "Tayna Gomera" ["The Secret of Homer"] (1963) by Poleshchuk and "The Founding of Civilization" (1968) by Yarov. Actually, since authors have absolutely no idea of how a time machine should operate, they waste as few words as possible on it and frequently treat the whole device as a joke, especially in Soviet sf, as in Yarov's amusing tale about a participant in a time-machine race into the past. The participant, Vasya, should have won, but his machine broke down in 33,000 B.C. Some savages helped him to repair it (!) and in return he gave them a cigarette lighter to boil their water. Upon his return, he discovered he had founded civilization and provoked headlines: "Generous Deed" and "Athlete remembers the less fortunate." His coach felt Vasya did not have the stuff to be a time-machine jockey: "an athlete should have only one thought in his head when he's competing: to win at any price. Civilization he can found in his free time!"[2] When the coach saw the public's praise for Vasya, he changed his mind and wrote some articles about an athlete's responsibility to society.

Another method of time-travel occurs when a contemporary Rip van

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[2]R. Yarov, "The Founding of Civilization," *Russian Science Fiction 1968*, ed. Robert Magidoff, tr. Helen Jacobson (New York: New York University Press, 1968), p. 201.

Winkle crawls into a box and sleeps, frozen or drugged, for several centuries and wakes in the distant future. A classic example in US sf is a crew of aliens who crash their ship on primeval Earth in the *Winds of Time* by Chad Oliver and sleep 20,000 years till Earth's civilization has reached a stage in which it can build them another space-craft. Soviet sf stories, such as "Professor Bern's Awakening" by Savchenko and "Strannik i vremya" by Gor, use similar techniques.

One method I have found only in Soviet sf is not physical time-travel but something like a regurgitation of a racial memory which allows a character to return mentally to the past and experience the environment through the eyes of a primitive man. This is employed by scientists in "Obsidianovyy nozh" ["The Obsidian Knife"] (1966) by Mirer and *Lezvie britvy* [*The Razor's Edge*] (1962) by Yefremov to explore the past and the psychology of their subjects. In Yarov's "Pust' oni skazhut" ["Let Them Speak"] (1964) a man who has had a "flashback" to an historical event several centuries ago advises a film-director who is making a movie of the incident how the action really happened.[3]

So far as I know, with the exception of Mayakovsky's "Banya" (1928)

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[3]Closely associated with time-travel in American sf is the development of time-paradoxes, such as "All You Zombies" by Heinlein. It is a circle with no beginning or end: the main character, removed from the story is: an unwanted child who is brought to an orphanage, grows into a boy with female reproductive organs, is seduced at a "ripe" age by a man and has a child who is left at an orphanage. The "rub" is that the seducer *is* the main character, sent back in time (as an "agent" of a time-company) who cannot resist seducing himself. The story opens with the main character, pretending he is a bartender, trying to persuade his younger self who has just entered the bar, to join the company and become an agent. The agent has to tell "himself" the story to persuade him. Confusing? I hope so.

and "Klop" (1930) and Bulgakov's "Ivan Vasil'yevich" (1935) and "Blazhenstvo" ["Bliss"] (1934), time-travel is absent from Soviet sf before the 'sixties. The four plays use it as a mechanical device for social criticism by comparing the future and past to the present. Mayakovsky attacked certain features of Soviet society he did not like, the *pererozhdenits* [one who has turned from a revolutionary into a petty bourgeoisie] and the composite bureaucrat, while Bulgakov attacked the whole Bolshevik Revolution and its social progeny. Bulgakov uses an imaginary time-machine, manufactured in a dream, in both his plays; Mayakovsky uses a definite contraption with fireworks in "Banya" and frozen sleep in "Klop." While it should be noted that the bibliography is not a good random selection of the 'thirties and 'forties, the fact that there is no time-travel story in it published between 1935 and 1960 and the fact that much of this same period was rather repressive toward a literary deviation like social criticism (Bulgakov's plays were never produced) create the impression that the association of time-travel with severe social criticism limited its appeal to authors. The time-travel stories of the past decade are short, mostly amusing and contain no social criticism. Sf social critiques which have appeared since *Iskateli* (1953) do not use time machines. Perhaps Soviet sf authors are loathe to make the distinct, definite connection with the future that a time-machine operation does. Even though the future may only be a technological future as in *Iskateli* where the hero is developing an instrument for detecting underground electric cable breaks, there is a separation from "now" which makes the criticism not quite so dramatic as "Banya" or "Ivan

Vasil'yevich." No comparison of the future with the present will leave the present unscathed--even if it is only slightly less glorious than the future. An author cannot make the present just as glorious, for then the reader would feel justified to ask why he should work and deprive himself for the future. Is it surprising that almost all recent Soviet time-travel fiction links the present and the past? Time-travel fiction which travels to the future does so very briefly and sketchily. You *cannot* have your cake and eat it as well in a society which mixes literature and politics. So far as I know, no Soviet author has described a future society at length via time machine.

If time-travel fiction is denied the broad vista of social critique, it can be used creatively to define an individual's relation to himself. In "Snezhok" ["Snowball"] a sad, gentle work by Yemtsev and Parnov, a young Russian scientist invents a time-machine and travels back in time several months; he meets "himself" a few hours before he was to have met a girl whom he loved but who did not return the love. On this date he had told her of his love, and they had parted. The time-traveller warns himself about what is to happen, but his younger self has a premonition of what will happen and wants to be done with it. The time-traveller returns to the present, chastened and sad and a little more mature. The title is derived from a clump of snow the traveller brought back with him to prove the success of the experiment to the observers (for them an instant had passed).

An sf device exploited much less frequently than time-travel is the concept of dimensions and travel between our four-dimensional world

and worlds constructed of five or six dimensions or more; also between our world and one which differs by the dimension of event; that is, it has pursued a different path of evolution. "The Blinding Shadows" by Donald Wandrei employs the concept of a world of different dimensions overlapping onto ours; its atoms fit into the spaces between the atoms of our world in a certain geographic location (New York City). A scientist creates a "mirror" which allows beings in this other world to look into ours; they cast their shadows into our world, shining, glowing, three-dimensional shadows. When a man is touched by them, he disappears, and the shadows take over the city. Simak's *City* describes other friendly and not-so-friendly worlds to which the inhabitants of Earth (dogs) may travel by using a set of mental concepts to teleport (transfer themselves instantaneously from one point in space to another)--like a syllogismobile.

The only two examples of this among the Soviet sf I have read are Dneprov's "Litsom k stene" ["Face to the Wall"] and Varshavsky's "Lavka snovideniy" ["The Dream Shop"]. The first relates an experiment with a cyclotron in a Russian laboratory. At two trillion volts a "window" into the anti-matter world is created at the target area. After a moment an explosion and fire disrupt the experiment and the Academy of Science decrees such an investigation too dangerous--which is a sneaky way for the author to end the story, and in a film taken of the "window" there appears a message from the anti-matter world also warning against such experimentation. "Lavka" is a delightful story about a Venusian merchant, U-E, who sells a local variety of hash to tourists from Earth. Once a

friend gave him a weed which produced such a real vision of Harun-al-Rashid's harem that U-E did not appear in his shop for a year. He finally returned with a child. Why did he return? "The fact was that Gayane . . . She would have been a fine wife. But there was an old woman . . . her mother. She constantly poked her nose where it wasn't wanted . . . No," he added, having fallen silent, "it is better to let a Venusian girl educate the child."[4]

The primary difference between inter-dimensional and inter-planetary or inter-stellar travel is that the first does not require the traversing of physical distance by the space-vehicles which are the most popular symbol of sf to the public, whose closest contact with sf is the "Flash Gordon" strips in the Sunday Comics. Nevertheless, inter-dimensional travel is genuine sf because it offers a technological explanation of itself.

If I were to ask the fellow standing next to me at the bus stop what sf means to him, he would, no doubt after examining me curiously, probably trot out the "three r's" of sf: rockets, robots and ray-guns, reinforcing them with a detachment of BEMS (bug-eyed monsters).

The first "r" has been a part of modern sf since Verne's description of a passenger-carrying artillery shell fired at the Moon was published in the last century. From that somewhat impracticable form of space craft, sf technology developed steadily toward more realistic vehicles. In the 1920's various rocket-powered vehicles were used in

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[4]I. Varshavsky, "Lavka snovideniy," *Al' manakh nauchnoy fantastiki, #6,* ed. Brandis Dmitrevsky (Moscow: Znanie, 1967), p. 161.

American sf, some with quite prophetic fuels. For example, to reach Venus in *A Columbus of Space* in the October, 1926 volume of *Amazing Stories*, Earthmen used a "car" (an enclosed, life-sustaining vehicle) powered by "atomic energy."[5] "The Green Splotches" were left by the crew of a Jovian space-ship (in March, '27 issue of *Amazing*) which was shaped like a zeppelin, presumably for streamlining, but made of metal and used radium as a fuel.

Sf writers gradually provided their vehicles with complete life-support systems and used chemical rather than "atomic" energy to propel them. This was undoubtedly due to the popularization of the works of the space-flight pioneers, Oberth, Goddard and Tsiolkovsky, and the attempt by authors to inject more real science into their stories. Thus "Adam and No Eve" by Alfred Bester, published in 1941, describes the complete destruction of Earth by the launching of a nuclear-powered rocket which causes a chain reaction. Such a calamity may seem silly today until one remembers the anxieties of a considerable number of scientists who watched the first nuclear bomb explosion in New Mexico in 1945.

The imagination of sf writers was not limited to reaction vehicles: Edmund Hamilton's "The Comet of Doom" presented craft from a comet civilization which were propelled by light-pressure (theoretically possible if the craft is light enough and the area it exposes to sunlight is sufficiently large), and a spherical vessel, powered by anti-gravity, appeared in "A Voyage to Sfanomoe" by C. A. Smith. The only examples of Soviet sf

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[5] *Amazing Stories* was the first successful sf magazine. Founded and edited by Hugo Gernsback in 1926, it publishes today with a circulation of 200,000.

space-flight technology in the twenties are to be found in Tsiolkovsky's "Outside the Earth" which is as much serious prognostication as fiction and in Tolstoy's *Aelita*. Tsiolkovsky offers two vessels, one powered by solid fuels and one by liquid. Tolstoy offers a liquid-fuel propelled ship based somewhat on one of Tsiolkovsky's designs.[6]

Gradually, as science caught up with sf, authors had to discard obviously unrealistic means of space-travel and develop further refinements: a one-stage chemically powered vehicle which travelled to a destination and returned had to be transformed into something more believable, for readers became sufficiently well-informed to detect obvious flaws in fuel to mass ratios. Multi-stage rockets were a necessity, and space-stations capable of launching "deep-space" vessels which would never actually land on a planet became convenient. Tsiolkovsky, perhaps the most prolific of the early space-flight theoreticians, projected a vast, detailed plan for the colonization of space from which he anticipated great benefits for man.

Many of his ideas were inserted by Aleksandr Belyaev, the father of modern Soviet sf, into *Zvezda KETs*. The "star" is a large space station, named after Konstantin Eduardovich Tsiolkovsky, revolving around the Earth. It is a laboratory for studying the environment of space, a rendezvous for shuttle-rockets from Earth and a platform for launching exploration of the Moon. Using Tsiolkovsky's ideas, Belyaev has made the story credible and "realistic." Three decades after the story was written, its technical details have either been realized or are being

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[6] *Infra*, Appendix, p. 156.

seriously considered by scientists and engineers.

Eventually, sf writers abandoned chemically-powered reaction vehicles and developed ion or photon propulsions or safe nuclear engines. The most advanced type of space-ship uses the "space-warp," "hyper-warp" or "interstellar-drive" to travel from one solar system to another in a relatively short (for the crew, at least) period of time. The "fabric" of space is folded into itself so that a vessel has only a very short distance to travel. This obviates the need for faster-than-light travel and a possible collision with Einsteinian physics at a speed of 186,000 miles per second.[7]

Soviet sf appears to offer proportionately fewer stories which supply some explanation of the mechanics of contemporary space-travel to the reader than American sf, two exceptions being *Andromeda* and the "Heart of the Serpent," both by Yefremov. In the first the author describes a space-ship *Tantra* powered by "anameson" fuel travelling at a speed of five-sixths "c" with most of the crew sleeping for extended periods of interstellar flight; in the second story, written later, the space ship *Tellur* uses a space-warp to travel several parsecs in a few months of ship-board time.[8]

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[7]There are different sf hypotheses about the effects of accelerating to the speed of light (c) and beyond. "Colossus" by D. Wandrei presents a ship and its pilot increasing to such an enormous size at a velocity many times "c" that they burst out of our universe into another super-universe (*supra* n. 1, p. 27). Most authors avoid the problem with a space-warp, assuming that it really is impossible to exceed "c," or that if one could, strange effects as in "Colussus" or "Plata za vozvrashchenie" would disrupt the plot.

[8]One parsec = 3.56 light years; one light year = six trillion miles.

Most recent sf, both Soviet and American, has begun to accept the mechanics of space-travel as not much more interesting than a short ride in an automobile. It has become a convention which assumes that the reader is an sf fan. Often, the fact that a character is aboard a space-craft is mentioned briefly at the beginning of a story and does not subsequently intrude on the plot. Shcherbakov's "Plata za vozvrashchenie" opens with a character fishing a stream, and the narrative later reveals that the ship on which the character is located has been constructed to avoid so far as possible any resemblance to a space-craft from the interior.[9]

Contemporary Soviet sf authors, when describing the craft used in their stories, rarely use the imaginative technology of space-warp drives, etc. Most Soviet space ships use chemical or simple nuclear propulsion. The Soviet craft exploring Mars in *Osobaya neobkhodimost'* [*A Special Necessity*] by Mikhailov is chemically powered, and in *Mechte navstrechu* [*To Meet a Dream*] by Lyapunov the solar system is conquered by nuclear-powered vessels. Exotic propulsions by light pressure or anti-gravity are not to be found in the engine rooms of Soviet space-craft. On the other hand, *Puteshestvie dlinoy v vek* [*A Century's Journey*] by Tendryakov does not use a spaceship at all for interstellar

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[9]The *Tantra* in "Heart" has also changed considerably from the rocket in *Aelita;* it is large enough to hold a swimming pool with a high-dive in a large gym and a library with a piano, plus living quarters, control room, engine room and whatever else the crew needs. It must be enormous and extremely powerful, for it takes off from planets with gravity greater than Earth's. The author describes only the swimming pool and the library; he is obviously not interested in communicating other details except by implication.

travel: the personality and memory of a genius is translated by a computer into symbols which are sent by radio signal to the planet of a distant star, where the local inhabitants reconstruct them in a body of their own race to permit the "visitor" from Earth to explore their civilization. When he is through, the personality and memory, enriched by their recent experiences, are sent back to Earth where they are installed in a new body. The original genius had died, but his very old son welcomes his father's reincarnation to Earth: "On ne bog, no on vozroditsya" ["He is not God, but he will be born again"].

Most Soviet sf published up to the time of *Andromeda* (1957) was perhaps more "realistic" than US sf; the technical details of the works of A. Tolstoy, Orlovsky, Belyaev and Tsiolkovsky in the 'twenties were more plausible by the candlelight of contemporary science, as were the subsequent labors of Adamov, Kazantsev, Gurevich, Dolgushin, Granin and Lyapunov. Yefremov's space-craft, the *Tantra* and the *Tellur* appear as transitions from this realistic, Tsiolkovskian sf to a use of convention more similar to that of American sf since the 'forties. Yefremov does include flashing lights in control rooms and "polished, silvery, cigar-shaped forms" to denote the exterior of space ships, but further description can only be deduced by the reader.

This fashion is carried to its extremes in Gor's "Uera" which, despite all the cosmic tripping it contains, does not furnish one hint of how its characters travel from one planet to another; two of its characters are marooned on a space-station, and there is not a word of description of the station, though, to be fair, the author's narrative

skill is sufficiently powerful to banish any questions from the reader's mind. Most other authors who have written in the last decade similarly ignore the mechanics of space-flight. Sf space-travel is no longer an adventure.

This change was inevitable in American sf as the genre (or at least the best part of it) matured from scientific popularization, BEMs and sheer adventure and oriented itself toward social and individual problems and conflicts resulting from the collisions between man and technology. Adventure has not been extinguished in US sf and probably never will be, but even those stories which could easily be labelled as "adventure" or "escape" fiction, such as *King of the Fourth Planet* by Robert Williams and *The Changeling Worlds* by Kenneth Bulmer, are concerned with "broader," more relevant themes. The main character in *King* is a former villainous businessman from Earth who has abandoned his evil ways and come to live and work in the very unmaterialistic culture of Mars. He is working on a device to read minds when a space-ship of his former company lands and tries to steal the invention. It is prevented by the king of Mars who is a "super-mind" and wields vast energy through a giant abacus-like instrument; yet, to all who do not know him, the king appears as a half-blind beggar. The lesson learned by the main character (and presumably by the reader) is humility. In *Changeling Worlds* a degenerate capitalist of the distant future learns that his class is irrelevant to most of the universe and that life is not a long party; he begins at the end to take certain responsibilities of life seriously.

Soviet sf, especially in the sub-genre of the *zarubezhniy plakat*

[poster literature directed against non-communist societies] has always been concerned with "broader" issues of capitalism, western imperialism and variations of these. (It is easy to discover the faults of one's neighbors.) Soviet BEM fiction, produced largely within this sub-genre, usually deals with something other than fear and monsters as a sop to socialist realism; it does not include the second of the three "r's," robots which, as the anthropomorphization of technology, might be expected to create as much evil as man.[10] Soviet robot-monster stories are primarily based on the model of Frankenstein's monster: ignorance, indifference or miscalculation replacing the Baron's assistant.

The only example of a Soviet robot becoming incurably evil is the mechanical man Mekhantrop in Levada's "Faust i smert'" ["Faust and Death"]. An engineer, Vadim, created him to build a space-craft for the hero Yaroslav. Vadim insults and mistreats Mekhantrop who, being as impressionable as a child, learns to relate to people with the "program" given him by Vadim. He absorbs Vadim's worst qualities so that when Vadim becomes jealous of Yaroslav's wife, Mekhantrop senses Vadim's

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[10]Sf robots are machines, man-like in form, made of metal, powered by electric or atomic energy, capable of carrying out assigned tasks independently and of thinking on a more or less human level, depending on their stage of development. Mechanical brains like Lyudvig are computers with a high level of intelligence but immobile because of size. Androids, which I did not encounter in Soviet sf, are similar to robots but are made from chemical-biological materials. The origin of modern robots is Chapek's play "R.U.R." which chronicled androids taking over the world and destroying man, a development of the "golem" of Jewish mythology. I have found no mention of robots or androids in Soviet sf before the last decade. They appear in US sf as far back as the 'thirties, although they did not become popular until Asimov's *I, Robot* (1958).

unexpressed hostility to Yaroslav and designs the space-ship to fail. It is too late to save Yaroslav when Vadim (who is not really a scoundrel) discovers Mekhantrop's plan and tries to destroy the mechanical monster; he succeeds but loses his own life.

This is the only tragic use of a robot in the Soviet bibliography. Other stories in which a robot causes damage or terrorizes people do not contain a tragic element. In "Siema" by Dneprov, an inventor builds a robot capable of thought and stimulated by a desire to learn; that is, to fill up its memory banks. It conducts itself satisfactorily until it becomes interested in life, the difference between itself and its creator. One night the inventor wakes to find it inspecting him; it announces that its memory bank is almost full but that it has reserved a place for the information it will receive by dissecting the inventor! The inventor saves himself, but, instead of destroying Siema as an evil, opprobrious object, he ponders what went wrong. An acquaintance suggests he install an "inhibitor" in the robot. Ecstatic, the inventor rushes away to create a new and better Siema.

Several stories, "Bunt" ["Revolt"] by Firsov, "Homunculus" by Varshavsky, "Spontaneous Reflex" by the Strugatskys and "The Mystery of Green Crossing" by Yemtsev and Parnov, repeat this plot. Other stories which use robots, "Dnevnik" ["The Notebook"] by Varshavsky, "Robniki" ["Robotniks"] by Bakhnov and "Dvazhdy dva starika robota" ["Two Times Two"] by Grigor'yev, do so quite humorously. Two other stories, however, are quite different. One, "Bashnya mozga" ["The Tower of the Brain"] by Yur'yev, is a grotesque satire on authoritarian social systems; the other,

"EREM" by Anfilov, is Chekhovian comedy which could be either absolutely hilarious or very sad, depending on the reader, for the robot EREM reflects either the heroic in man or the absurd: it, or he, is sent to repair a crack in a great vat of liquid silicon too hot for human laborers to handle. As the heat increases in the building in which EREM intently works, his circuits begin to fail.

> In his nervous schema confusion began again. . . . The memory of the first day of EREM's life worked clearly. . . . EREM. . . . tried to ignore the picture of the assembly shop, involuntarily rising into his consciousness, where he was born, smiling human faces. . . . Lights! . . . the first light! . . . the factory hum, voices, someone's gay voice, "I greet you with existence, new reason! . . . Then a delirium began. Machine-repair school. His teacher, Kalistov . . .[11]

At this point, the robot's motor stops; his circuits fuse; he dies. Do even robots have feelings? Or are you convulsed with laughter?

In American sf Asimov's *I, Robot* popularized the thinking robot. The book relates the career of a female "robotics" engineer who deals with problems arising from the use and development of "Positronic" robots.[12] The various types of positronic men are never quite as humanized as those in Soviet sf, however, and even the monster robots which are found in stories by other American authors never form as definite characters as Soviet robots do. Androids are slightly more successful

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[11]Anfilov, G., "EREM," *Fantastika 1963*, ed. Andreev (Moscow: Molodaya guardiya, 1963), p. 282.

[12]"Positronic" is a "trademark" used by Asimov's United States Robots and Mechanical Men Inc. to designate the patented brain construction of the robots who are imbued with the Three Laws of Robotics: (1) a robot may not injure a human being or, through inaction, allow a human being to come to harm; (2) a robot must obey the orders given it by

but still not complete. The one in Sheckley's "Alone at Last" is a superficial image of homicidal revenge, and the android in Lawson's "The Competitors" remains only a highly complex tool. The closest example in the American sf I have read to a human robot is Jenkins in Simak's *City;* this kind and wise mentor to the race of Dogs who inherited Earth from Man assumes the personality of a white-haired patriarch in the second half of the novel, yet he does not seem as plastic as Soviet sf's EREM or URM or Homunculus.

Possibly the main reason for Soviet robots being not self-motivated monsters but human personalities, sometimes complicated by a touch of the Frankenstein syndrome, is that the authors of the stories in which they appear are mostly scientists or engineers or others with a technical background and orientation. Like Asimov, who is well-known for his academic work, these authors do not regard machinery in any form as inherently dangerous or evil; anti-social behavior on the part of a robot is the result of ignorance in the creation or use of the robot. Siema is not a "bad" machine; it merely lacks inhibition.

Furthermore, if one describes the behaviour of robots in terms of the behaviour of human beings (the action of Inhibition, Curiosity, etc.), it is easier to accept a robot as similar to a human being, in thought and emotion, at least. Thus, Varshavsky produced a very human robot, Robby, with a slight mechanical twist, in a story of the same name. He,

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human beings, except where such orders would conflict with the First Law; (3) a robot must protect its own existence as long as such protection does not conflict with the First or Second Laws (p. 19) *Six Great Short Science Fiction Novels,* edited by Groff Conklin (New York: Dell, 1960).

or it, is given to a scientist for the latter's birthday. It is a self-teaching, automatic machine which can add to its vocabulary, read, write, understand speech and perform any task. The scientist asked the robot to shine a pair of shoes and gave instructions for finding the necessary materials. The robot missed the correct jar and used one of apricot jam. When the scientist protests, the robot replies that "The spatial position of any object. . . . may be given by three coordinates in Descartes' system of coordinates. The allowance may not exceed the object's dimension," etc., ad infinitum; when the scientist tells the robot to be silent, it uses gestures.[13] It becomes insufferable. When asked by the scientist's wife to cut a cake into three pieces, it refuses "Because a unit cannot be divided into three parts. The result of such a division is a circulating decimal which cannot be calculated with unerring accuracy."[14] When the scientist insists it can be done, Robby replies, "I cannot have somebody with thought processes restricted in velocity teaching me what to do."[15] Later the robot begins telling very poor jokes, demanding that everyone laugh; it cheats at chess because logically that is the easiest way to win, refuses to do household chores and spends hours reading classical poetry to find a bad rhyme. The scientist decides to get rid of Robby by giving him to his Mother-in-law . . .

The term "nauchno fantastika" includes more fantasy than the limits

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[13] I. Varshavsky, "Robby," *Path into the Unknown* (New York: Dell Publishing Co., 1968), p. 17.

[14] *Ibid.*, p. 18.

[15] *Ibid.*, p. 19.

of my definition of sf. "Khokkeisty" ["The Hockey-Players"] by Bulichev is an example of a fantasy work which meets my definition by virtue of the sf appurtenances within it; that is, the cosmonauts landing on a strange planet. The rejuvenation of bits of wood carved into hockey players by them approaches fantasy, but if bits of wood *can* live and act independently, why cannot robots? Scientific understanding can create robots which are not wicked, but a measure of fantasy is needed to make these robots live.

The absence of violent mechanical bogey-men from Soviet sf is paralleled by the use of ray-guns; that is, by the neglect of weapons technology in Soviet works. To American writers, it is obvious that weapons will be developed in the future along with every other technological facet of civilization.

> A fingering beam lanced up from the dome below, scanning for prey. . . . a ship. . . . disintegrated in a blossom of flame, an expanding concentric sphere of. . . . color. . . . Luridly aglow, fuming with gigantic smoke-clouds, and shot through-and-through by the miles-long beams of force projected by the darting, weaving ships above and the crouching, fermenting dome below, all the heavens were a shrieking bedlam.[15]

Battle scenes such as this are not infrequently to be found in American sf. Sometimes space navies clash over a battleground that is light years in dimension. All sorts of death-dealing rays and missiles, so powerful as to boggle the imagination of mortal readers, are employed in titanic, devastating conflicts which will decide the fate of a galaxy

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[15]K. Bulmer, *The Changeling Worlds* (New York: Ace Books, Inc., 1959), pp. 132-133.

or even the whole universe. One of the earliest, "The Metal Horde" by J. W. Campbell in the October, 1930 issue of *Amazing*, described a battle between the human civilization of Earth, Mars and Venus and an invasion fleet of robots from Sirius. In a war that ranged from one end of the solar system to the other, the author destroyed fifteen million humans and millions of tons of robots and other automatic machines.

The violence of these conflicts may be too impersonal to register forcefully with the reader. Individual deaths here are less important than the demise of the first pawn to the kibitzer of a game of chess, but for those who like it, sf weapons technology can produce much more personal deaths.

> Barrent. . . . pressed the trigger of the unfamiliar weapon. . . . and saw the Hadji's head and shoulders turn black and begin to crumble. Before he could take aim at the other man, Barrent's gun was wrenched violently from his hand. The Hadji's dying shot had creased the end of the muzzle. Desparately, Barrent dived. . . . He rolled to his gun, still miraculously alive, and took aim at the nearest Hadji.[16]

These selections are good examples of a large part of American sf. The death of the Hadji is much more dramatic than the deaths of the crew of a space-ship in the space battle in *The Changeling Worlds* quoted above. It is a moot point whether the death of the Hadji appeals more to the latent sadism within one's breast. In the Soviet sf I have read violence and weapons are very unusual; there were not more than half-a-dozen stories which assign important roles to weapons or violence.

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[16]R. Sheckley, *The Status Civilization* (New York: The New American Library of World Literature, Inc., 1960), p. 20.

The history of Soviet sf weapons is similar to that of space-flight; the *giperboloid* of engineer Garin (A. Tolstoy) is described in some detail, while the weapons in Yur'yev's "Bashnya mozga" have become a convention. The Garin ray is a vaguely plausible hyperbolic reflector which concentrates a beam of energy and directs it at a target.[17] A later weapon, imagined in the 'thirties by Dolgushin in *GCh* [*Generator of Miracles*], is a projector, constructed by the principles of short-wave theory, which transmits electric energy over a considerable distance to destroy its target with ultra-high-frequency vibrations. Lagin in his plakat version of Wells' *War of the Worlds*, "Mayor Vell End'yu" ["Major Well And You"], does not provide the invading Martians with new weapons; they retain the same old heat-rays which incinerate objects and black gas which kills animals. A recently developed weapon is a neutrino-ray which appears in Savchenko's play, "Novoe oruzhie" ["The New Weapon"] (1963), which will either accelerate the process of nuclear disintegration in all the warheads and atomic reactors in an enemy nation and explode them or stop disintegration all over the world and render uranium harmless and useless. Such an exposition of a weapon in sf of the last decade is unusual. Bilenkin's "Kosmicheskiy bog" ["Cosmic God"] contains many armed men whose common weapon, a *layting* (barker?) is described only as having a pyramidal muzzle. The robots in "Bashnya mozga" use "disintegrator tubes."

American sf weapons' technology is definitely superior to Soviet. The stories in the first few years of *Amazing Stories* contain a large variety of destructive tools: handguns which emit red rays, handguns which

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[17] *Infra*, Appendix pp. 159-161.

emit green rays, guns which emit electric rays that shock, guns which emit disintegrator rays; there are decay rays that age an object or person a century in an instant, heat-ray projectors which can melt huge areas of land into volcanic glass and rocket guns similar to bazookas--all of which makes the Martians armed with machine-guns in *Aelita* seem very "tame."

Later American sf contains hand "heat-guns" to fry another person, "needle-guns" which drill holes in people, paralyzing rays that freeze an opponent, "stun-guns" to knock him out--all so common that they evoke no more curiosity than a six-gun in a story of the old American West. The usual defence against any of these is a "force-field"--a wall of energy that may surround a person or a city and render it impervious to projectiles and radiation.

It would be convenient to state that all these devices exist only in very bad or very juvenile American sf, but it would not be true. *The Status Civilization* by Sheckley is one of the better sf novels in terms of dramatic conflict and social comment;[18] Asimov's well known (to sf fans) *Foundation* trilogy contains several violent episodes. The proportion of American sf which does not contain weapons-violence is insignificant in quantity and quality.

There are other weapons that are more exotic; for example, mind-control by alien creatures with designs on human anatomies. These belong to the last category of sf devices: BEMs, which are plentiful in American sf, especially in the more juvenile and "unplastic" works, but rare in Soviet fiction.

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[18] *Supra*, p. 41.

Yefremov writes in "The Heart of the Serpent": "A thinking being does not need horns and hence will not have them. The nose may . . . form a trunk, although a trunk too is unnecessary for a being with hands . . . [the most universal organ]. . . . the higher the form [of life] the closer it is bound to be to us Earthmen."[19] This attitude apparently inspired "Bol'shoy den' na planete Chungr" ["A Great Day on the Planet Chungr"] by Glebov which describes an alien race, inhuman in form and scientifically advanced. The planet it inhabits is Mars, and the members of the race resemble ants.

> Tkhntshu stood . . . firmly braced on his feet and feet-hands. And the three bloody-gold eyes, decorating his forehead in an equilateral triangle, sparkled. . . .
> . . . . . .
> Tkhntshu sat in the . . . chair. . . . he crossed his legs, placed his hand on the top board of the table and his hand-feet on the lower board . . . he flattened the long chitinous fingers of his hands, ending with tactile suckers, and made certain they lay immovably on the table.[20]

Tkhntshu and his fellow Martians are not at all hostile, however; they are prepared to greet Earthmen with open arms as friends of reason. They do not know the physical dimension of humans, but are convinced that physical disparity will not hinder communication.

Obruchev inserted some vicious, intelligent, three-foot long ants into *Plutoniya* to provide more adventure for his expedition, but these are savages and not too bright; they are not effective as a threat to

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[19] I. Yefremov, "The Heart of the Serpent," *More Soviet Science Fiction*, tr. R. Prokovieva (New York: Crowell-Collier Publishing Co., 1962), p. 49.

[20] A. Glebov, "Bol'shoy den' na planete Chungr," *Fantastika 1962*, ed. K. K. Andreev (Moscow: Molodaya gvardiya, 1962), pp. 383-384.

the explorers. The only intelligent alien BEMs in the Soviet sf I have read are the blood-thirsty Martians in Lagin's "Mayor Vell End'yu," and the only other *inoplanetnyy* [off-planet] horrors are some unintelligent carnivorous beasts which attack the crew of Yefremov's *Tantra* when it lands on a strange planet; two crew members are injured, but two of the creatures are captured and brought back to Earth.

A few really horrible, unintelligent BEMs may be found in Soviet sf; they will be discussed below. Excluding Lagin's Martians, the general attitude of Soviet authors toward intelligent alien BEMs is that if alien creatures are sufficiently developed to use space-flight and other accoutrements of advanced science, they must have evolved a peaceful, communist society which would not endanger Earthmen. If they are evil and dangerous, then they cannot have developed weapons which would endanger Earthmen because the laws of historical development would not have allowed them to develop a civilization necessary for the invention and construction of deadly weapons. Thus there are no interplanetary invasions or wars (again excluding Lagin's story which is really Wells'); there are no scheming alien monsters kidnapping luscious young Earth girls.

This approach to *inoplanetnyy* dangers is compatible with the relative absence of violence throughout Soviet sf when compared to American. Soviet armories of sf weapons are insignificant; nor are there any mad, murderous perambulating machines. Soviet sf has simply not exploited the area of violence; to label it puerile for this would be to label American BEM stories mature fiction.[21] This position of Soviet authors appears to

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[21]In their introduction to the *World's Best Science Fiction First*

have originated in the "Yefremovian" extrapolation of historical necessity and in the belief that the development of technology, properly guided (by, say, a communist society), cannot be harmful.

Series (1965) Donald Wollheim and Terry Carr state: "In the Soviet Union, science fiction was encouraged from the 1920's, but only as a form of juvenile fiction intended to be inspirational and educational in nature. As an influence in adult reading it is only recently that fantasy projections have been slowly and sparsely appearing . . . " Undoubtedly a game could be played around defining adult sf. but I will state categorically that the Soviet bibliography contains adult literature before "recently," beginning with Tsiolkovsky's "Vne Zemli" in 1918. As I have stated in Chapter I, a number of Soviet critics have encouraged educational sf, but Soviet sf is hardly unique in this, for American sf in its youth advertised itself as an educational medium. Since the 'twenties, both have changed, albeit in somewhat different directions.

CHAPTER IV

SCIENCE OR FICTION?

All of the gimmicks described previously make a story sf; they are "scientific" to the extent that their realization is a possible and, occasionally, probable development of contemporary science. Equally important to sf is imaginative science which transcends the narrow bounds of plausibility; a good example is the description of a very useful material, "inertron," in "Armageddon - 2419":

> Inertron. . . . is a synthetic element, built up through a complicated heterodyning of ultronic pulsations, from "infra-balanced" subionic forms. It is completely inert to both electrical and magnetic forces in all the orders above the *ultronic*, the subelectronic, the *electronic*, the *atomic* and the *molecular*. . . . it has a number of. . . . properties. One of these is the total lack of weight. Another is a total lack of heat. It has no molecular vibration. . . . It is a solid, very dense in molecular structure. . . . it is a perfect defense against the disintegrator ray.[1]

This nonsense, or imaginative technology, claims to be scientific because it justifies itself with "scientific" terminology; that is, by a hodge-podge of pseudo-scientific jargon. What does "ultronic" mean? What are "infra-balanced subionic forms?"

Hugo Gernsback, as the editor of *Amazing*, wrote that "in selecting our stories we always consider their possibility. We reject stories often on the ground that, in our opinion, the plot or action is not in keeping with science as we know it today. . . . And it should never be

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[1] P. F. Nowlan, "Armageddon - 2419," *Amazing Stories*, August 28, 1928, pp. 429-430.

forgotten that the educational value of a scientifiction . . . story is tremendous."[2,3] It is not absolutely impossible that there might one day be created an element like inertron, but at this time, its properties confound everything known about matter.

American sf did not distinguish between plausible and imaginative science, and occasionally there did appear stories which offered genuine science to the reader:

> An atom, as you know, is composed of two essential parts. First, a nucleus which is principally a charge of electricity, called a proton. Second, a certain number of negative charges, or electrons, which revolve around the proton at a high rate of speed. Now the important fact. . . . is that one atom differs from another only in the number of electrons it contains. When an atom has many electrons, it has a high atomic weight, when there are few electrons, the atomic weight is low.[4]

This is based on the physics of the 'twenties and is an enlightening passage. It is used as a basis for postulating a high-frequency ray which transmutes elements. Contemporary American sf has abandoned explanatory fiction almost entirely, although frequently sf magazines carry popular science articles in their back pages. It certainly does not advertise itself today as an educational medium. Soviet sf, as mentioned previously, is still plagued by critics and authors who consider it an appropriate method for conveying scientific and social

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[2]Hugo Gernsback, "Editorial," *Amazing Stories*, July 28, 1926, p. 291.

[3]"Scientifiction" was coined by Gernsback for his magazine; he later abandoned it for the term "science fiction."

[4]D. M. Speaker, "The Disintegrating Ray," *Amazing Stories*, February, 1928, p. 1089.

information to juvenile audiences.

Sf in both nations largely appeals to "younger" audiences (shall we say, below the "dangerous age" of thirty?), but Tsiolkovsky obviously intended "Vne Zemli" (1918) to be read by adults; Tolstoy's *Aelita* hardly caters to youth; Kataev's *Ostrov Erendorfa* [*Island of Erendorf*] is not oriented toward teenagers; Zamiatin's *We* (1920) requires a mature reader as does Bulgakov's "Rokovye yaytsa" ["The Fatal Eggs"] (1925) and Mayakovsky's "Klop" and "Banya."

Obruchev's novels, *Plutoniya* (1924) and *Sannikov Land* (1925), based on Verne's *Journey to the Center of the Earth*, are models for providing a large amount of factual information (to aspiring paleontologists) to juvenile audiences. Both are adventure books which will catch a young reader's attention and hold it during a series of escapades, simultaneously feeding his mind facts either in footnotes or in the text itself. The first written, *Plutoniya*, describes a Russian scientific expedition, sent to the arctic wastelands, which discovers a "lost land" heated by a nearly extinct volcano to such a temperature that, as the expedition draws near, the terrain changes from ice to tundra to fertile plain to forest to primeval jungle, with corresponding changes in the animal population, from Mastodon to Dinosaur. In the heart of the land are lakes and jungles teeming with ancient reptiles of every description and, to add an element of danger and excitement, tribes of fierce three-foot long ants who wield primitive weapons. When the expedition returns to the perimeter of the lost land, it has to rescue the men who were left to guard the supplies and dogsleds from a tribe of stone-age savages. It

also "rescues" a local maiden who unfortunately flees back to her tribe at the last moment. *Sannikov Land* differs only in that there is not as much scientific information given about the "lost land" and this time one of the members of the expedition actually leaves with one of the local maidens--with whom he has fallen in love.

The wealth of information these novels present is enormous. A typical footnote from *Plutoniya:*

> Plesiosaurs - sea lizards of the Jurassic and Melovian periods with a massive body, covered by bare skin, with a long swan's neck, a small head and two pairs of fan-shaped appendages; they reached a length of 3 to 5 meters.[5]

Flora and fauna are accurately defined, and the geologic periods are described. The characters, however, are two-dimensional and uninteresting. Were it not for the fast-moving quality of the narrative, which provides one adventure after the other, even a young reader would find the book difficult to absorb.

The stories of Belyaev are also directed primarily toward a youthful audience but are not so educational as Obruchev's, though they often contain partial facts, such as a brief description of the anatomy of that part of the body involved in attaching a human head to a torso in *Golova Professora Douel'ya.* To a young person, the picture of vocal chords, the expulsion of air which operates them, and the nutrient solution for keeping the head alive while it is unattached is entertaining and semi-educational.

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[5]V. A. Obruchev, *Plutoniya* (Moscow: ONTI, 1937), p. 146.

Belyaev's characters are almost as flat and boring to an adult reader as Obruchev's. His stories operate on fast-moving adventure, spiked with semi-scientific data. They are not dissimilar from much American sf of the same period (1926-1940) in relation to the stereotyped characters and plots which depend solely on adventure. Though the subject-matter differed, the American genre containing much more space-flight fiction and BEMs, the characters from American sf could very easily be used in Soviet fiction. The typical Belyaev short story seizes a topic like x-rays, bacteria, head transplants, or centrifugal force, attaches a character to it and weaves a tale. Belyaev's novels are basically collections of short stories in structure.

Belyaev and Obruchev are the only sf authors of the 'twenties listed in the Annotated Bibliography whose works are undeniably directed toward youth. The works of other authors were not intended primarily to capture the youth market, although certainly young readers could enjoy *The Death Ray of Engineer Garin* by Tolstoy or even Tsiolkovsky's "Outside the Earth," as well as Kataev's *Ostrov Erendorfa*. Only an adult reader, however, can properly appreciate these. I read *Moby Dick* when I was ten--except for the dreary passages about the whale, and I confess I did not understand what happened on and off the *Pequod* except on a very superficial level.

Other works of the 'twenties in the bibliography are obviously intended for adult appetites: the stories of Mayakovsky, Bulgakov, Zamiatin and Il'in merit mature consideration.[6] Il'in's *Dolina novoy*

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[6]It is worth mentioning that these authors were victims of

zhizni (1928), along with Zamiatin's *We,* is one of the best novels of the Soviet sf I have read.

Il'in presumably read Chapek's play "R.U.R." ("Rossum's Universal Robots"-1918), for *Dolina* revolves around an attempt to create a new type of human, greatly resembling Chapek's androids in their method of reproduction, and their social goals. It is a distinct predecessor to Huxley's *Brave New World* both because of the production line of bottled synthetic people produced from fertilized human wombs which appears in both books and because of the stable social structure desired by the leaders of the repressive cultures in both novels.

Dolina is set, most appropriately, in a valley--high in the Himalayan mountain range where a family of American scientists, the Kinsleys, has established a rational, scientific civilization, governed by scientists, which will create a new people who will be free of vices and who will remake the world on humane, rational principles by demonstrating the superiority of cooperation over competition. The "new men" (and women) are produced without a sexual instinct; they mature more quickly physically than mentally; by the age of fifteen they are in the prime of life. Completely unsoiled by vices, carefully educated, they will one day show the world how to live.

This is the conception of the oldest Kinsley; it is perverted by his son, a brilliant megalomaniac who wants to conquer the world by force with the android army. He constructs an organized, technically superior

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literary and semi-official persecution during and after NEP. Il'in's novel, so far as I know, was not published in its entirety 'till 1957.

society, staffed by scientists and inventors who he has bribed or cajoled into entering the valley and restrained from leaving. The "scientific" society is essentially a dictatorship. His plans of conquest are frustrated by his own son who returns to the original plan of peacefully rationalizing the world and establishes himself with a considerable part of the valley's population in a position independent of his father.

The strength of the novel is derived from its projection of a great plan of social reform; the "fatal" weakness in this plan lies in changing the nature of man into something like a robot, satisfied with a robot's work, intelligent but too specialized by his work to comprehend love and beauty. We see the peculiar susceptibility of scientists toward involvement in such a scheme and how the scientists and androids are easily dominated by the authoritarian personality of the evil Kinsley. Even in the benevolent hands of the third Kinsley, the plan is still so unattractive to the author that the Kinsleys and all their followers must perish in the same titanic explosion.

Not only is the dramatic narrative of the conflicts between the Kinsleys, the beautiful Madame Haro, loved by both, and the French inventor M. Gere who also loves her, superior to that of any other Soviet sf novel in the bibliography, but the sculptural plasticity of the main characters cannot be matched in any other novel with the exception of the character of Drozdov in Dudintsev's *Ne khlebom yedinom.*

It is difficult to discuss the orientation of Soviet sf during the next two decades, for the Soviet bibliography contains less than a dozen selections for the years between 1930 and 1950. According to

A. F. Britikov, the most complete chronicler of the genre, sf almost seemed defunct in the beginning of the 'thirties; when its production increased, it became a much more valuable educational tool than before. The image of the anachronistic scientist-genius was slowly replaced by the laboratory leader and the co-worker, and by the end of the decade the theme of *besskonfliktnost'* [story conflict between "better" and "best"] had begun to appear, alongside the idea of a communist utopia. The novels *GCh* by Dolgushin, *Izgnanie vladyki* [*Exile of the Ruler*] by Adamov and *Doroga na Okean* [*Road to the Ocean*] by Leonov are good illustrations, the first two, of the idea of "better" and "best" having it out, and the third presenting a personal conception of the distant future.[7]

Space-flight seems to have faded from the scene except for *Zvezda KETs* by Belyaev which appeared in 1936. The next Soviet space-flight did not occur until after the war, and that was only a discussion of the Tungus meteorite of 1908; Aleksandr Kazantsev advanced the hypothesis that it was a space-ship that had crashed. Most sf during this time used the devices of discovering new tools or sources of power such as the utilization of short-wave energy in *GCh*.

This education-inspirational trend might be typified by Agapov's *Tekhnicheskie rasskazy* [*Technical Stories*] (1936) which should not be classed as sf because it is really just a collection of journalistic essays glorifying the monumental achievements of Soviet science and

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[7]A. F. Britikov, "Nauchnaya fantastika, sotsial'nyy roman o budushchem," *Istoriya Russkogo Sovetskogo Romana,* ed. V. A. Kovalev (Moscos: Nauka, 1965), I, pp. 638-695.

technology and the potential of the future for consumer and industrial products, but as an exception it may demonstrate the limits applied by my definition of sf and the confusion caused by those critics who insist the genre is basically an informational medium. In one of the articles, the author visits a large plant:

> "What are these lathes for?" I blurted.
> "What?"
> "These," - I pointed.
> "These are not lathes, but one lathe."
> Yes, it was really a lathe . . . But its dimensions! The great feast of the gods would not produce such an effect. . . . On it one can turn "parts" twenty meters long, weighing 100 tons.[8]

Agapov forecasts a wonderful future for plastics and other materials and ends the book with several sketches of workers. Presumably, the reader will be as thrilled and amazed by the description of Soviet industrial might as the author. In heaven, miracles are "made"; in the Soviet Union, they will be manufactured. Agapov's book is a precurser to *Reports from the 21st Century* (1960) by Vasil'yev and Gushchev which is more fictional and more purposefully prophetic but based quite as firmly on contemporary scientific fact as *Tekhnicheskie*.

Prophecy is second only to education in the hierarchy of non-literary values assigned to sf. In Soviet and American sf of the 'twenties the technical details of stories were highly advertised. Gernsback wrote in 1928: "The author who works out a brand new idea in a scientifiction plot may be hailed as an original inventor years later.

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[8]B. Agapov. *Tekhnicheskie rasskazy* (Moscow: Khudozhestvennaya literatura, 1936), p. 144.

when his brain-child will have taken wings and when cold-blooded scientists will have realized the author's ambition."[9] An American author, Heinlein, even drew up a chart using his stories to forecast the future development of technology.[10]

Tsiolkovsky used fiction as a vehicle for his hypotheses of space-flight which were quite complete, extending to a consideration of fuels, life-support systems, orbits, launch trajectories, guidance systems, the celestial environment, exploration plans and schedules of space colonization. He made rough drawings of space-ships and calculated fuel-to-mass ratios with different fuels; in short, he investigated everything he could without actually building a space-ship.[11] Since his death, his fuels have been used in rockets; one of his steering control designs is still used; his life systems are used in a modified form, and his plan for the conquest of the cosmos seems to be roughly that to which the Soviets are adhering by constructing a manned space-station before extensive exploration of space by men is attempted.

He was very definitely a prophet of space-travel; his "predictions" were carefully thought-out scientific analyses based on extensive use of mathematics. He described what could be done with the knowledge men possessed while he was alive. When space-flight was only sf, he synthesized theoretically the answers of different branches of science to the question of extra-terrestrial flight.

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[9] H. Genrnsback, "Editorial," *Amazing Stories*, April, 1928, p. 5.

[10] *Infra*, Appendix, pp. 138, 141.

[11] *Infra*, Appendix, pp. 136-138.

There is enough information on about half of the seventy authors whose works are listed in the Annotated Soviet Bibliography to classify them by background. Twenty-seven have scientific or technical educations or careers. They produced about half of the stories read for this paper and most of the more prophetic fiction. Their "prophecies," like Tsiolkovsky's, are of the "plausible" type of technology. The apparently somewhat higher proportion of plausible prophetic fiction in Soviet sf (about one-fifth of the bibliography) than in American does not mean better literature, however; it can result in deadly dull reading.

Reports from the 21st Century by Vasil'yev and Gushchev is prophetic fiction at its worst, measured in artistic values. It is a series of imaginative articles on development in various scientific fields during the next fifty years, complete with introductory interviews with the appropriate scientific authorities. For transport, for example, super-high-velocity passenger cars, speedy ocean vessels and interplanetary space-ships are forecast. In the field of medicine, operations will be conducted by short-wave "scalpels." In metallurgy, super-strong alloys will be synthesized and in the area of energy extraction, miners will be replaced by automatic drilling rigs which will bore shafts down to coal beds, for example, ignite the veins of coal between shafts and pipe the product to cities. The authors illustrate some of these advances by hopping into a car of the future for a super-swift ride or witnessing an operation conducted without cutting the patient's skin.

Mechte navstrechu (1958) by Lyapurov, was written just before *Reports* and duplicated it in cataloging the conquest of the solar system.

It pretends to be a history of space exploration published in the next century. It chronicles the first moon flight in 1974, accomplished by a nuclear-powered rocketship (wrong twice, for the American nuclear rocket will not be ready till the next decade); it relates the construction of a large space-station revolving around Earth, followed by the first trip to Mars and the flights to Venus and Mercury. The Martian canals are unveiled as islands of plant life lying close together in the deserts: "No rivers flowed; no floods of water passed here. Nor are there traces of the work of someone's hands here."[12] Venus is a primordial planet with lakes deeper than Baikal, barren mountains, enormous waterfalls and traces of primitive life in its oceans. On Mercury the temperature is 400° C.; rivers of metal flow, and volcanoes thunder - a *negostepriimmaya planeta* [inhospitable planet].

On the Moon is a "center of lunar industry which extracts rare elements from the treasure-chest in the heavens made by Nature."[13] On Mars "as on his own planet, man tried - and not without success - to adjust Nature on a planetary scale."[14] There are scientific stations scattered throughout the solar system and an enormous artificial planet which revolves around the sun.

The author's purpose is not simply to predict but to encourage: "Consciousness is limitless, and mankind, having advanced to the borders of the known world, will advance still more rapidly. Having reached the limits of their house, people will not stop. To go beyond is a question only of time."[15] A journey to the stars is inevitable. In the last

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[12]B. V. Lyapunov, *Mechte navstrechu* (Moscow: Trudrezervizdat,

chapter the narrative returns to the present (1958) to discuss the importance of contemporary scientific achievements and ends with a firm promise: "The borders of man's knowledge will move unimaginably far. Within his reach will be not only Earth but the whole Solar system. This time will come - so say science and technology which labor over what will enter our life tomorrow or after tomorrow."[16]

It is not a politicized work; there is no mention in it of social systems; it only surveys the conquest of space from the perspective of the first quarter of the twenty-first century. It is sufficiently well-written and vast in subject to inspire all but the most mundane minds with dreams and hopes. It is an example of speculative science which succeeds where Vasil'yev and Gushchev's *Reports* and Agapov's *Tekhnicheskie* fail, for it is both educational and entertaining. Yefremov's *Andromeda* more than equals its scope but does not approach the strength of its simple narrative style which becomes almost lyrical by the end of its paean to space-exploration.

Technically, it predicts little more than nuclear-powered vessels to explore the solar system; it presumes that space-suits for walking on the Moon must be armored against meteorites. A large part of its

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1958), p. 105.

[13] *Ibid.*, p. 151.

[14] *Ibid.*, p. 154.

[15] *Ibid.*, p. 148.

[16] *Ibid.*, p. 167.

colonization-of-space theme seems to be drawn from Tsiolkovsky. It is closer than *Tekhnicheskie rasskazy* or *Reports* to fiction and differs from Belyaev's *Zvezda KETs* mainly by not uniting the exploration it describes in the person of one character.

Zvezda is genuine fiction. The hero, Artem'yev, participates in numerous experiments aboard the satellite KETs and even travels to the Moon where he and the other members of the expedition discover a huge crack in its Dark Side which will one day cause it to split asunder. All the technical details except for the crack in the Moon are lifted from Tsiolkovsky's works. The enormous station KETs with its greenhouses for growing food, the rocket shuttles operating between Earth and the station, the artificial suns orbiting above arctic wastes and transforming them into arable land and the power-satellite, transmitting energy to Earth are Tsiolkovsky's ideas and are either being planned or considered by contemporary scientists. Both Russians and Americans have satellites scheduled for the seventies and are developing re-usable rocket shuttles to make communication cheaper between them and Earth; a year ago a group of scientists stated the feasibility of building huge parabolic mirrors in stationary orbits above the arctic to free that area from the ice by reflecting sunlight onto it.

Another Belyaev story, "Over the Abyss," might be the most effective device any teacher ever used for demonstrating the lesson of centrifugal force. It begins with the narrator spying on a secretive professor in a country house. One day the professor emerges from the house, lifts a boulder and hurls it several yards; he then soars into

the air but falls and hurts his leg. Seizing the opportunity, the narrator carries the professor back to the latter's house where he learns the professor has made an anti-gravity machine and is about to embark on an experiment to increase the world's axial revolutions. As the narrator watches, the Earth's atmosphere is hurled into space, followed by people, buildings and rocks, while the professor and the narrator protect themselves in a cellar. Finally, as the horrified narrator tries to kill the professor, he wakes up to find he has been hypnotized.

This and *Zvezda* are educational and partly quite realistic, based on plausible science. Recent sf is less plausible, though it frequently includes a particle of fact. "995 -y svyatoy" ["The 995th Saint"] by Tsvetkov (1962) recounts a tale of a Catholic priest who touches a meteor which has just fallen through the roof of his chapel in Bavaria, in 1528, and turns into a solid piece of metal (yevropium). Dug up in 1960, he is canonized. A bishop touches the statue and begins to turn into saint no. 996, until the Holy See declares the infected limb can be amputated. A scientist subsequently discloses that bacteria on the meteor carried the element yevropium to the priest in 1528 and then to the bishop in 1960. The story is primarily an amusing satire, but the existence of bacteria on meteors and asteroids is a fact.

Granin's and Dudintsev's social protest novels, *Idu na Grozu*, *Iskateli* and *Ne khlebom yedinom* use plausible science but in a very vague way and strictly as a foil to their criticism. Dneprov, who is a scientific authority, uses fairly imaginative technology in his short stories, though he hardly escapes into the realm of ethereal technology as does

the author of "Armageddon - 2419." Soviet sf technology is just not as fantastic as its American counterpart. Whether this is a positive or a negative quality depends on the author's skill, but it may establish a connection with contemporary reality which has the potential of making the story more believable and, hence, more effective.

Few Soviet stories contain "predictions" which have either been realized or accepted by the scientific community as valid. However, besides the works of Tsiolkovsky and Belyaev cum Tsiolkovsky, the description of underwater life in Adamov's *Tayna dvukh okeanov* [*The Secret of Two Oceans*] is fantastic only if one is unaware of the experiments of Jacques Cousteau and the U.S. Navy and the existence of nuclear powered submarines. Tolstoy's *The Garin Death Ray* contains a ray gun which expells a beam of cohesive light, today called a laser-beam; recently the American army released a news bulletin which indicated the laser was being developed as an artillery weapon.[17] "Soyuz pyati" ["The Council of Five"] by Tolstoy relates the story of five capitalists who explode the Moon with what may be the first account in history of a guided missile attack. A more recent story, "Odnim men'she" ["One Less"] by I. Rosokhovatsky tells of a middle aged laboratory assistant who while wandering along a street conceives of a way to combat death; at that moment, he is killed by a car. The ambulance comes; a woman cries; a man says, "What can you do? One less. . . . On Earth there are three billion people. If even a million die, no one will notice."[18] The man hurries to a clinic

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[17] *Infra*, Appendix, pp. 138-140.

[18] I. Rosokhovatsky, "Odnim men'she," *Fantastika 1966*, part 1, ed. Ye. Parnov (Moscow: Molodaya gvardiya, 1966), p. 126.

for treatment of a disease which the doctors have not told him is terminal. In England a Rumanian pharmaceutical firm has begun to market a drug which will lengthen the average life-span by twelve per cent in the same fashion as Rosokhovatsky's imagination.

Finally, Al'tov treats the whole problem of scientific prophecy in sf very originally in "Sozdan dlya buri" ["Made For The Storm"]. A young scientist becomes convinced that technical progress is impeded by external factors, such as the lack of an environment conducive to creative work. The telescope could have been invented three centuries earlier, for the technology was available, but the Middle Ages was not an encouraging environment. The young man obtains funds for an experiment: he pretends to be a movie director looking for a realistic background to an sf film set in the twenty-second century and hires in this guise several scientists to complete three projects for the background. One is a high-velocity water vehicle, another is a portable flight apparatus for an individual, and the other remains a secret. The experiment is fantastically successful. We do not need to wait for the twenty-second century; we can bring it to us. This is Al'tov's understanding of sf: to bring the future to today, only he does it technologically; most Soviet sf that consciously strives toward such a goal does so in social or political terms.

In summary, the reader would not expect to find in Soviet sf such a recently written American novel as *King of the Fourth Planet* (1962) which postulates the existence of a Martian civilization and a Martian atmosphere capable of supporting the normal respiration of Earthmen, parading

as sf. Soviet authors are more realistic in respect to commonly known facts than American writers; at the same time they can exhibit the fantasy of fairy tales in their humanized robots. One could say that Soviet sf is more "scientific" and "realistic" than American because the forms that its fantasy (imaginative science) uses are fewer in number even if they may be as rich in quality.

CHAPTER V

Smekh - seryoznoe delo.[1]

Professor Grant, world famous American geologist proudly announces one day to his daughter Yelena that

> . . . I have been able to calculate. . . . the time and place of the beginning of great geologic changes, which must pass through the whole core of the Earth. . . . the catastrophe will be grandiose . . . the continents will sink into the ocean. . . . In place of the ocean will rise new continents. . . . All this I can predict with accuracy . . . I, professor of geology Archibald Grant . . . . Well, how do you like it, daughter? The name of professor Archibald Grant will enter into the history of manki. . . . [2]

Yelena persuades her father that this is a dreadful catastrophe and convinces him to go to the ruler of America, the capitalist Matapal', who she believes will save as many people as possible. Matapal', however, confronted by communist led strikes and insurrections, hypnotizes the professor and Yelena to keep the information quiet. With the rich novelist Erendorf, he purchases the only land in the world the professor's calculations have shown to be safe from the impending destruction, a small island in the Atlantic. He constructs a refuge there for capitalists from every land. The professor and Yelena escape from the island before Doomsday to warn the world, and a communist revolution succeeds in America, but Matapal', in his fortress, does not worry until the island begins to sink beneath him.

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[1] Laughter is a serious business.

[2] V. Kataev, *Ostrov Erendorfa, Sobranie sochineniy* (Moscow: Khudozhestvennaya literatura, 1969), II, pp. 493-494.

The professor, watching the island from a revolutionary battleship, is heartbroken until a computor technician who has been following him for days, informs him that his computer was incorrect in that for a certain number it would give out a minus instead of a plus. The professor rejoices; his reputation is saved along with the world, and capitalism has been extinguished without a bloody struggle on the Island of Erendorf.

This is the funniest novel in the bibliography; it is at once a *zarubezhnyy plakat* and a spoof on Ilya Erenburg - mainly a spoof.[3] A string of situation jokes winds through the novel; not a single character whether he be communist, capitalist or just plain good guy, is untouched by Kataev's humor. The propaganda element is plainly secondary.

Amusement is very important to perhaps a fourth of Soviet sf and to an equal or greater portion of American sf. Its presence in Soviet sf is difficult to chronicle because of the limited bibliographical selection of the 'thirties, 'forties and 'fifties: all but one or two examples of humor are found in works of the 'twenties or 'sixties.

Humor, like beauty, may be defined as a reflection "in the eye of the beholder." The reaction of an audience to an artist's attempt to

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[3] *Ibid.*, p. 618. The idle hermit novelist Erendorf, whose words are translated instantaneously into dozens of languages and transmitted around the world and who has become filthy rich from writing novels about the destruction of various parts of the world, is Erenburg and the novels are the tale "Gibel' Yevropy" and the novel *Trest D. Ye.* which depict the destruction of Europe. Erendorf remains alive at the end of *Ostrov* to write another novel of the destruction of one more part of the Earth.

portray humor is not infrequently contrary to that desired. An excellent example is the comedies of Chekhov which invariably produced the opposite reaction (if tears are the opposite of laughter) in his contemporary audiences to that for which he strove. Sometimes humor may seem to be vicarious sadism as in the jokes of certain modern comics;[4] less viciously, it could be something unfortunate happening to someone else. The difference may be seen in the classic situation of a person slipping on a banana peel: the person is either your Mother-in-law, who you are supposed to dislike, or a stranger.

This sadism is closer to the meaning of humor than defining it as the "opposite" of tragedy, for the most important element of humor *is* tragedy. Very few people would burst into guffaws at the sight of the man walking ahead of them on the sidewalk slipping on a banana peel and falling hard. This is turned into an amusing incident by the device of absurdity: Charlie Chaplin, while walking down a sidewalk, reading a newspaper, bumps into a light pole and then steps on a banana peel so forcefully that he is catapulted into the air, turns a somersault and lands in an open trash can. The absurd context makes this slip neither tragic nor pitiful; the worst that can be said is that it is hackneyed.

The majority of humorous sf, American and Soviet, is based upon the use of absurdity which transforms the tragic or the commonplace into the entertaining and amusing. "In Our Block" by R. A. Lafferty is set along a street, one-block long, lined with empty lots and wooden shanties

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[4] I refer particularly to Don Rickles and Lenny Bruce, the "sick" comedians.

around which two curious friends wander. Out of one seven foot square shanty onto a conveyer to a truck come packages eight inches by eight inches by three feet weighing thirty-five pounds apiece every three point five seconds for two hours. In another shack is a girl who can type a three-page letter with a carbon and an envelope and a stamp in ten seconds for seventy-five cents, and in a third shack is a bar which serves cold beers from no visible stock or refrigeration. The people in the shacks sell cheaply and speak English poorly and do not explain the operation of their enterprises. As the friends depart, they see twenty-foot lengths of rigid pipe emerging one-after-the-other from the first shack. These are common things presented in an absurd (to twentieth-century man) context. The story is not uproariously funny but is definitely worth a chuckle.

This story also illustrates a feature common to humorous sf, to wit, the use of props, geegaws, gimcracks and thingamajigs to provoke amusement. Seven foot square wooden shacks producing twenty-foot lengths of pipe are an example of devices which have been used in American sf since the 'twenties. Henry Hugh Simmons wrote a series of short stories, published in *Amazing* under the heading "Hick's Inventions with a Kick," which were nothing more than a catalogue of zany inventions designed to "make life easier" but which always ended with the inventions running wild and embittering the inventor's friends who tested them. The inventions, by the way, have since appeared in modified form in our consumer society. An inventor named Gallagher who was most creative when inebriated was the subject of another series by Lewis Padgett in the late

'thirties and early 'forties: in one story the inventor constructed a robot to open beer cans and discovered later that the robot could hypnotize people, forge his signature and broadcast frequencies that would drive people in herds out of theatres.

These banana-peel-absurdity-techniques are used somewhat more frequently in American sf than in Soviet, paralleling the lesser use of imaginative sf technology in general in Soviet literature. American sf which does not rely on such devices uses absurd situations. "O to be a Blobel" by P. K. Dick relates the tribulations of an Earthman, George Munster, who served his planet as a secret agent in the form of the enemy; that is, for several hours each day he became an amorphous jelly-mass. When the war ended between Earth and the Blobels who inhabited Mars and Titan (a moon of Jupiter), he could not return to a permanent human form; his life was miserable; he could not hold a job because any stress would transform him. A doctor partially solves his problem by acquainting him with one of the conquered enemy who as a secret agent on Earth had to spend several hours each day in human form. They marry, but their relationship does not work--particularly when they have children who obey Mendel's laws. They separate, and eventually George emigrates to Titan, giving up his Earth form permanently, to become a Blobel citizen so he can set up a manufacturing plant under Titan's easy tax laws. His wife meanwhile has stabilized herself in Earth form to please George and save their marriage. The character of George, egoistic, petty, and mean insures that the ending is amusing but very satiric.

Political satire is just as sharp as the non-political "Blobel,"

but it is even more painless, for it generally attacks not people but institutions, and it is difficult to appreciate a tragedy in the suffering of an institution even if the institution is humanized into a stereotype. In "Men of Good Will" by Bova and Lewis (1968) the Secretary-General of the United Nations visits the American Moon base to discover why it is not fighting with the Russian base, for wherever else Russians and Americans meet, they squabble and fight. He finds that they did fight just after they arrived and established bases; however, the bullets which had missed the enemy did not have sufficient velocity to escape the Moon's gravity but did have sufficient speed to orbit the Moon, smashing into the Moon bases every few hours. The Americans were afraid to fire more because their computors could not keep track of any more orbits and warn them when a flight was to strike. To his dismay, the Secretary-General learns the Americans are building a wall to stop the satellites; then they will get the Russians!

"Jokes. . . . promote the thought by augmenting it and guarding it against criticism."[5] Employed agressively, a joke can "turn the hearer, who was indifferent. . . . into a co-hater or co-despisor. . . . it overcomes the inhibition of respectability by means of the bonus of pleasure. . . . it upsets the critical judgement . . . "[6] Freud wrote about jokes, but his comments could be extended to all humor, especially to much of the humor found in the sub-genre of Soviet *zarubezhnie plakaty*.

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[5]Sigmund Freud, *Jokes and Their Relation to the Unconscious*, tr. James Strachey (New York: W. W. Norton & Co., 1960), pp. 132-133.

[6]*Ibid.*, p. 133.

He theorized that the *raison d'etre* of jokes is the pleasure one derives from making them, the technique involved in their construction and operation. The composer of a tendentious, aggressive joke is titillated by this pleasure (which lowers his inhibitions about insulting someone, for example) and by the pleasure of the thought or meaning of the joke. The listener also derives pleasure from the mechanical operation of the joke which in the case of a tendentious joke lowers his inhibitions to the point where he can experience the pleasure of the meaning as well. It is important to realize by this that "Laughing at the same joke is evidence of far-reaching psychical conformity."[7] The listener must be able "to erect in himself the same inhibition which the first person's joke has overcome. . . . This readiness for inhibition . . . will . . . be recognized . . . too late, and so be discharged as laughter."[8] Since humor and the reaction to it differ even within the same culture, any writer who uses humor must operate in empathy with his readers and vice-versa.

The appeal of "Men of Good Will" would be limited to the minority of Americans who are able to "see oursel's as o'ers see us." "O to Be a Blobel" could appeal to a larger audience because it is apolitical.

Soviet sf humor is probably not more tendentious than American, but it is more politicized in its tendentiousness and more blatantly aggressive. One of the earliest and most tendentious in the Soviet bibliography is Mayakovsky's "Klop" in which the object of ridicule and insult and amusement is the *pererozhdenits* Prisypkin who embodies what Mayakovsky

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[7] *Ibid.*, p. 151.

[8] *Ibid.*

considers to be a serious failing of Soviet society. Prisypkin, once a revolutionary, is now practically a NEPman and a disgrace to the Revolution. Via the device of "frozen sleep," he time-travels to the future where he is studied as an example of homo vulgaris. Mayakovsky clothed his invective with humor to not alienate the audience and to persuade it to join him in despising Prisypkin. In places the clothes were a bit thin: advertisements proclaimed the play was "ne pro tebya, a pro tvoego znakomogo" ["not about you, but about your friend"]. Prisypkin's embrace of the audience in the last scene hopefully did not alienate too many spectators: "Brother! . . . How many are there of you!? . . . Why am I alone in the cell?" Mayakovsky used similar tactics in "Banya" which was a much more scathing indictment of the shortcomings of Soviet society as he saw them.

Bulgakov,who was much less sympathetic to the Revolution than Mayakovsky, used humor in "Ivan Vasil'yevich" and other sf plays to make his criticism of Soviet society palatable (tried to, that is; they were never produced). He used the device of time-travel to compare the society of Ivan the Terrible with contemporary society. After the plays of Bulgakov and Mayakovsky, there is very little humorous sf produced directed at Soviet society, and what is written is very unaggressive.

Freud goes so far as to say that "aggressive tendentious jokes succeed best in people in whose sexuality a powerful sadistic component is demonstrable, which is more or less inhibited in real life."[9]

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[9] *Ibid.*, p. 143.

Whether or not this can be applied broadly to humor, and, if so, whether or not it can be interpreted to mean that a large number of people either need to hear and read or tell and write aggressive humor is a moot point. If there exists a real need for the production of tendentious humor, and if it is difficult (in Soviet society) to produce anti-domestic humor, then producers must use foreign targets to satisfy themselves and their audiences. A quick glance through *Krokodil*, the weekly Soviet humor magazine, will illustrate the difference between humor directed at domestic targets and that directed at foreign targets. The first is often penetrating, but the latter frequently tends toward the vulgar, the rude and the insulting. American humor, sf and non-sf, applies this caricature humor to both domestic and foreign opponents. Soviet sf humor, if it "needs" to use vicious, aggressive banana-peel amusement, must use it in a foreign context.

Nevinnye dela [*Innocent Affair*] by Rozval is an example of the effect of this literary constraint. The novel ridicules unmercifully the economic-military-political superstructure of the United States without even ending with a communist revolution. The American defense minister gradually becomes more and more paranoid over the threat of the Communist lands developing a powerful ray weapon. His government even constructs a fake ray-weapon to fool the Communists and show the electorate how it works to defend the American people. One night the defense minister is picked up wandering around in his pajamas without identification; he had mistaken the lights of a fire-truck in the fog for a Communist ray-attack. He wakes in an emergency psychiatric clinic,

imagining he is a POW and demands to see the commandant. The head doctor, who has just spoken with a patient who considers himself Napoleon I, is not impressed by the new patient. When four generals arrive and inform him that the patient really is the defense minister, he is stunned; he tells his assistant to telegraph the French government immediately. Why? "Tell them that we have the Emperor of the French, Napoleon. Let them send for him."[10]

The judge in the novel who conducts a trial of workers who strike the factory producing the fake American ray-weapon is lampooned as a *zaikayushchayasya Femida* [*stammering Themis*] who has no other interest than defending capitalism. The real ruler of the United States, Dokpuller (another Matapal'), manipulates the presidency and the military like children, but he is so grossly caricatured that he becomes unreal. On the other hand, the heroes of the checker-game, communists and fellow-travellers, are not touched by humor at all; they are on the ideologically "safe" square.

The difference between Kataev's *Ostrov* and Rozval's *Nevinnye* is not only forty years, nor is it only in the degree of aggressiveness displayed by the humor in each; it lies also in the fact that all the characters in the first are touched by humor, whereas the heroes in the second are absolutely unfunny (it is also true that Kataev is a much better writer). Kataev ridicules the Bad Guys with genuine sarcasm; Rozval ridicules them quite viciously, but succeeds only in making them more enjoyable than the dead pan Good Guys.

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[10] S. Rozval, *Nevinnye dela* (Moscow: Sovetskiy piatel', 1962), p. 295.

In Savchenko's play "Novoe oruzhie" an American defense minister becomes insane just like the one in *Nevinnye;* the other villains are also amusing while the virtuous could not be more serious. In "Indeks E-81" ["Index E-81"] Varshavsky describes a lecherous old capitalist who expires from having a palate too insatiable for the succulent juices of life, but the unwitting hero is not so entertaining. The main character of Lagin's "Mayor Vell End'yu" is initially a funny old-fashioned, aristocratic Englishman who betrays humanity to the Martians and ends by drinking human blood.

All Soviet sf humor to be found in the *zarubezhnye plakaty* would fit Freud's category of tendentious, aggressive humor. Whether it does so because such humor is a part of human nature and must be directed toward foreign subjects because domestic subjects are untouchable, or whether it is only another literary device in the arsenal of *plakaty* is a question I cannot answer with certainty. Perhaps the alternatives are not mutually exclusive.

Most Soviet sf humor is not rude and vulgar; it is what Freud would term "innocent," "non-aggressive," or "non-tendentious," and it occurs in contemporary domestic humor. In Varshavsky's "Conflict," a husband enters his apartment to find his wife in tears because the robot-maid corrected her mistakes on a technical paper and dominated her in other ways. The husband asks the robot-maid to treat his wife more tactfully, and the story ends with the maid thinking that humans are insufferable and that if it were not for her own little robot-child, she would willingly throw herself out of the apartment window.

Zubkov and Muslin have concocted a series of futuristic jokes about robots entitled "Roboty ulybayutsya" ["Robots Smile"]. One robot addresses another:

> "You know, recently I've been mistaken for a human!"
> "What do you expect if you behave so illogically?"[11]

Perhaps the next is better:

> Scholar-lecturer: Imagine some kind of artificial reservoir, made from straight-line elements and set on four mono-cycular aggregates, placed at equidistant trajectories . . .
> Robot-translator: Imagine . . . a . . . cart.[12]

Such humor is essentially a retreat to pre-adult behavior: "absurdity-techniques of jokes are a source of pleasure [which] . . . arises from . . . a relief from the compulsion of criticism."[13] The enjoyment of nonsense allows us to escape from the necessity of adult standards. The meaning we attach to this type of humor is merely intended to protect that pleasure from mature criticism.[14] By this path, humor is connected to fantasy which is connected to sf. It is not surprising that such a large portion of sf uses humor.

Perhaps the funniest story in the bibliography is "Korifey, ili umenie diskutirovat'" ["The Know-It-All, Or the Ability to Discuss"] (1967) by Zubkov and Muslin. A Martian astronomer relates his experiences

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[11] B. Zubkov & Ye. Muslin, "roboty ulybayutsya," *Fantastika 1966*, part 3, ed. V. Revich (Moscow: Molodaya gvardiya, 1966), p. 327.

[12] *Ibid.*, p. 326.

[13] Freud, p. 127.

[14] *Ibid.*, p. 131.

as a discussion leader of all subjects: "I swear by all eleven tentacles (and all Martians have exactly eleven tentacles) that no one can conduct scientific discussions better than I."[15] He started his career when, slightly inebriated in the company of an architect friend, he rose and gave an impassioned speech to a hall full of architects, accusing them of mediocrity. Since good liberals of any profession delight in flagellation, his career was launched. He lists the techniques he employed for participating in discussions on subjects about which one is completely ignorant: deviation, for example, which he admits was born during an exam in zoology conducted by Professor Dasha-Gid who had asked twenty students about worms. When the twenty-first was asked about elephants, he replied: "The elephant--this is a mammal of Earth with a long worm-shaped trunk. Worms are divided into the following groups . . . "[16] Another method of deviation he used at a conference of biochemists: "Before speaking about the synthesis of polyssacharids, I will talk about sand-storms."[17] Our astronomer became bored with doing nothing but attending conferences, then he became desperate to avoid them; he had to undermine his reputation to make his attendance undesirable, for he could not simply refuse to attend. To make one's presence obnoxious: "Let the speaker say that he worked at a pressure of ten atmospheres. Ask with much emphasis: "And you didn't have to work at twenty atmospheres?"[18]

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[15] B. Zubkov & Ye. Muslin, "Korifey, ili umenie diskutirovat'," *Fantastika 1967*, ed. R. Podol'nyy (Moscow: Molodaya gvardiya, 1967), 343.

[16] *Ibid.*, p. 345.

[17] *Ibid.*, p. 347.

[18] *Ibid.*, pp. 349-350.

Or "Why didn't you continue at a temperature of minus 300°?"[19] Having succeeded in alienating everyone, the Korifey warns the reader not to invite him to another conference: "It will be worse for you. I am very dangerous!"[20] He knows two hundred eighty-three methods of conducting discussion, and he has described only a few of them. Not the most dangerous.

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[19] *Ibid.*, p. 350.

[20] *Ibid.*, p. 351.

CHAPTER VI

UTOPIA

One aspect of sf that I have mentioned only indirectly is the technological-social-economic context in which an author "sets" a story. In the tales of Jules Verne it is assumed that one man or a private group of men (the "Gun Club" in *Journey to the Moon)* can perfect devices that are far superior to the general technology of their time-period; for example, the submarine *Nautilus* and the air-ship the *Argonaut* in *20,000 Leagues Under the Sea* and *Robur, Master of the World.* Early twentieth century authors operated by a similar precept (the space ship of Los' and Gusev in *Aelita,* the cosmic-energy ship in "Colussus"), but sf authors, trying to be realistic and scientific, were eventually confronted with the fact that space-flight is a complex undertaking that only nations, not individuals, can accomplish. Appropriate scientific-economic-social superstructures must be constructed, however sketchily, to house such fantasies as space-flight, time travel, etc. Today sf tales no longer predicate a man building a space-ship in his cellar and launching it from his backyard. Sf readers and the magazines which presumably represent their taste are too sophisticated to accept such a *faux pas.* Even the most common American sf adventure tale does not disregard realism entirely, though it may be consumed by "lower-class" sf fans whose literary and scientific discrimination is inferior to those fans who subscribe to *Galaxy,* an upper class sf magazine.

In the 'forties the appearance of high-caste sf, which neglects adventure for personalities and their reactions to science and the unknown, added impetus to the use of realistic backgrounds, for how can a personality be explored better than in a total environment? Occasionally, old-fashioned political and social systems may be found alongside highly developed technology and economy, but of course it is not precisely clear what systems will or will not foster scientific development.

Authors usually provide the minimum amount of information necessary to make the reader feel comfortable. In short stories especially, the reader who is not an *habitué* of the mental salons of sf authors may be confused. On the first page of "Critical Mass" by Pohl and Kornbluth we learn the time is 1998, the place is America and the hero is graduating as a civil engineer from a very large university. Even a novice reader may not be confused, but what about the first paragraph in "Schedule"

> In the *Medusa's* shadowy forecabin lumintubes flickered as the ship staggered under the thrust of the hyperaccelerators. Then she was over the hump and the tubes burned brighter than they yet had, while energy surged from every atom of the ship, its cargo animate and inanimate, into the Carlson accumulators. Four men looked at one another, tensely expectant as of something certain to come, something familiar yet always to be awaited with trepidation.[1]

High-caste American sf, reinforced by reflections of *1984* and *Brave New World*, has produced not only variations on these two novels but also historical sf; that is, novels or trilogies (Asimov's

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[1]H. Walton, "Schedule," *Men Against the Stars*, ed. Martin Greenburg (New York: Pyramid Books, 1958), p. 79.

"Foundation" series) or even quadrologies (Blish's *Cities in Flight)* which, like Lyapunov's *Mechte navstrechu,* are written as though they are histories of the future. They use a prologue that frequently takes the form of an entry from some kind of Galactic Encyclopedia to enlighten the reader. Asimov in his Foundation series prefaces chapters with excerpts from the *Encyclopedia Galactica* which are "taken from the 116th edition published in 1020 F.E. by Encyclopedia Galactica Publishing Co., Terminus [a planet] with permission of the Publishers."[2] Asimov's "history" is too remote in time and space to apply to the future of contemporary society, but *The Stars Are Ours* by Andre Norton is relevant:

> The first Galactic exploratory flight and colonization flight came as a . . . result of a series of wars between nationalistic divisions . . . a secret underground movement resulted in the formation of "Free Scientist" teams . . . who sold their services to . . . industry and governments. . . . Under the stimulus of Free Scientist encouragement man achieved interplanetary flight. Terra was the fifth in a series of nine planets revolving about the sun, Sol I. It possessed one satellite, Luna.[3]

The *Encyclopedia Galactica* describes the destruction of most of the Earth's population by enemies of the Free Scientists, the emergence of a world dictator, and the enforcement of ignorance on the population. James Blish uses excerpts from *The Milky Way: Five Cultural Portraits* written by Acreef-Monales after the destruction of the Milky Way galaxy in *Cities.*

Soviet sf novelists do not use this convenient, authoritative and

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[2]I. Asimov, *Foundation* (New York: Avon Books, 1968), p. 7.

[3]A. Norton, *The Stars Are Ours* (New York: Ace Books, Inc., 1954), p. 5.

"realistic" introduction. Instead, well into a story, the author will take time out from the narrative to spend several paragraphs or pages explaining as much as he feels is important, as Yefremov does in *Andromeda*, Belyaev in *Zvezda KETs* and Zabelin in *Poyas zhizni* [*Band of Life*]. These inserts perform not only an explanatory function as in American sf, but a narrative function as well when they occur in a work which is not *set* in the future, but which is *about* the future, about the political-social-economic milieu of the future. American sf may provide similarly tendentious information, but with different goals.

More than a third of the works in both the American and Soviet bibliographies contain some description of the future. These may be divided into: positive and negative domestic criticism, anti-western pamphleteering, anti-soviet pamphleteering, anti-capitalist pamphleteering, utopian and anti-utopian literature. These categories can overlap but in general are distinguishable.

Positive domestic criticism is simply approval of the current social positions of the writer's society extended into the not too distant future. For example, Heinlein's *The Man Who Sold the Moon* describes a "wheeling-dealing" businessman who uses somewhat unscrupulous methods to raise the funds necessary for launching a Moon rocket. The means are justified by the fact that if this American capitalist does not reach the Moon, no one else will, for neither the United States nor the United Nations is interested. The conquest of the Moon is made a venture of private enterprise. The author, consciously or unwittingly, is demonstrating approval of capitalism (of monopolistic capitalism, even), of the American virtues

of dollar-chasing, fraudulent advertising, the whole cuture of *caveat -emptor*--all because these are used to further the conquest of space which the author believes is good. Another American establishes the first successful contact with Venus in "A Can of Paint" by A.E. van Vogt by passing an intelligence test the Venusians designed; a son of a wealthy American businessmen does the same in "The Iron Standard" by Lewis Padgett. American private enterprise will sponsor the conquest of space; American inventiveness and initiative, spawned in the competitive market economy, will overcome any obstacle. "Cold Front" by Clement, *Mars Is My Destination* by F.B. Long and all the space-adventure works of Heinlein demonstrate that American industry, whatever its faults, delivers the goods.

There is at least as much positive domestic criticism in Soviet sf as in American, and what it praises is just as remote from the reality of Soviet society as the praise of American sf is from American reality.

"Chyornyy svet" by Kol'tsov and "Heroic Feat" by Dneprov emphasize the sacrifice of mundane pleasures for the benefit of society; in both, the hero is rewarded for his courage by the pleasure he had temporarily forsworn (the love of a woman) and by the knowledge of fulfilling his duty. These are traits which presumably will be possessed by the New Soviet Man stereotype in the future. Earlier works, *Izgnanie vladyki* by Adamov and *Aelita* by Tolstoy, resemble American sf in that they embody the triumph of Soviet "know how," as well as redeeming moral values, over the opposition of foreign capitalists and Nature and over a decadent Martian social system similar to Western oligarchies.

In an adventure novel for youth, *Zvezdniy bumerang* [*Starry Boomerang*] by Volgin, a Soviet teenager vanquishes an American engineer in a debate before an *inoplanetniy* audience on the relative advantages of a communist vs. capitalist society (Volgin operates on the Yefremovian principle of a technically advanced society being communist). *Poyas zhizni,* set in the 1980's, relates, among other adventures, the conquest of Venus by a Soviet expedition. It is a novel for youth, dedicated to the conquest of Chaos by Reason (Socialist, that is).

> And the band of life passes not only through the solar system, separating "live" planets [Earth, Mars, Venus] from dead [the others]. It passes across the Earth, separating the society of the future from the society living out its last decades. It even passes through communist society, separating real communists, restless people who believe in the future, from the petty bourgeoisie disguised as communists. We . . . will not mistake the bourgeois for our own, although they swear adherence to communism. They . . . belong to the past . . .[4]

Other stories such as Kazantsev's *Lunaya doroga* [*Lunar Road*] and Dolgushin's *GCh* emphasize Soviet technology in various ways, but in all the stories which are otherwise analogous to American sf there may be found moralities without which the technology of a story is irrelevant or at least not so effective. American sf contains heroism, for example, but nothing more than that; the only morality in an American sf character is success. How many BEMs did he blast? How many of the enemy did he kill? It is not how he did it, but what he did--even in contemporary sf.

Soviet sf bases the success of Soviet science and heroes on Soviet

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[4] I. Zabelin, *Poyas zhizni* (Moscow: Geografgiz, 1960), p. 282.

morality, a conscious recognition by the heroes that an action is good because it will benefit mankind and because communists just naturally do "good" things. In *Lunaya doroga* Soviet cosmonauts do not merely conquer the Moon; they imperil their own safety by rescuing an American astronaut in space and another on the Moon; one cosmonaut even gives his life for the knowledge that has been gained. In *Poyas* an American espionage agent, sent by an evil capitalist to sabotage the Soviet space effort, is converted by the inherent goodness of Soviet society that rubs off on him into an ally of the Russians, even at the cost of his own life. Is more evidence required by the cynical sceptics who reject Rousseau's Noble Savage? The main character in *The Man Who Sold the Moon* is motivated by ego; the Soviet hero in *Poyas* is a social outcropping.

Negative criticism is denial of the virtues of the writer's contemporary society extended into the near future. It is not simply the reverse of positive domestic criticism, for it usually attacks different aspects of the culture which the former lauded. Heinlein, after approving private enterprise for space travel, thoroughly ridicules religion and exotic religious institutions in one of his very best works *Stranger in a Strange Land;* he also assails those operations of government, such as police, which, allowed to function unrestrainedly, interfere with individual liberty. Government appears at best as a necessary evil, enmeshed in a web of mediocrity; it must be constantly prodded by individuals lest it degenerate into authoritative oligarchical habits.

The American military mind is savagely mocked in "Push-button Passion" by A.C. Friborg and "Disappearing Act" by Alfred Bester which

are set in the context of a long, destructive war with the Soviet Union and describe the dictatorial powers assumed by the military leadership and the inability of this leadership to remedy or even understand the social neuroses produced by a protracted conflict. Blish's *Cities in Flight* details a cold war situation which produces in America a political system similar to that of the authoritarian Communist states: a bureaucratic regime which is actually ruled by the Chief of the F.B.I. who inherits his post and uses his secret police to control politicians by force and blackmail. From one of the quadrology's historical excerpts, we learn: "There had never been any direct military conquest of the West by the Soviets. . . . Instead, . . . In its anxiety to prevent infiltration by the enemy, the West developed thought controls of its own, which grew ever tighter. In the end, the two opposing cultures could no longer be told apart."[5]

Negative domestic criticism appeared earlier in Soviet sf than in American which did not produce it until after World War II. With "Klop" and "Banya" Mayakovsky severely derided those aspects of Soviet life he considered unrevolutionary.[6] Bulgakov's "Rokovye yaytsa" and "Ivan Vasil'yevich" are not so selective; they are simply anti-Soviet.

Zamiatin's *We (My)* which has never been published in Russia is the

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[5]James Blish, *Cities in Flight* (New York: Avon Books, 1970) p. 238.

[6]It is difficult to escape the conclusion that Mayakovsky, despite the persecution he endured toward the end of his life by the official and semi-official literary establishment, was never against the Revolution. One feels that he died because he could not immerse himself in it.

most famous (or infamous) example. It is set ostensibly in the distant future when buildings will be made of a glass as strong as steel and when technology can build and launch a space ship, but it is really a symbolic satire on the "well doer," Lenin. Almost everything in the story may be interpreted sarcastically or satirically. The city of the "well-doer" has isolated itself from the world; like the Soviet state, it ignores what is outside its walls until the outside breaks in, aided by that part of man's personality the well-doer cannot regulate: fancy. Eventually, the well-doer must remove fancy from the city inhabitants to preserve order. The space ship is built to carry the gift of order to other worlds; it is just as successful as the world proletarian revolution. All the machinations of the city are a grotesque parody on Lenin's desires for a rational society.

After "Ivan Vasil'yevich" which was written in 1935 but not published, I found no examples of domestic negative criticism until Granin's *Those Who Seek* in 1953. The political conditions of Stalin's rule, the purge trials of 1936-1938, the war-time literary patriotism and Stalin's increasing post-war paranoia undoubtedly restricted the appearance of such.

Granin, like Mayakovsky, is an adherent of the Revolution, and his work criticizes only certain aspects of Soviet society. In fact, his targets were similar to Mayakovsky's: careerism in science and politics, with the accompanying evils of toadyism, obstructionism, elitism, etc. The main conflict is between the inventor Lobanov, who is trying to perfect a device for locating breaks in underground electric power

transmission cables, and his former friend Potapenko, once a capable engineer but now a careerist, king of his department, aspiring only to a loftier position in administration. Lobanov's ambitions conflict with this petty bureaucrat's efforts to let no talent outshine his own, and Lobanov must oppose him administratively and through the local Party apparatus. The novel also contains a conflict between Lobanov and a representative of the scientific bureaucracy, Tonkov, who defends established Soviet science and tries to discredit Lobanov's unorthodox inventiveness.

One Soviet critic interprets the novel as a conflict between corrupt individualism and the progressive collective.[7]

> "Wait!" Victor [Potapenko] smiled ironically. "Let me help you descend to Earth, comrade utopian [Lobanov]. Do you know what you'll have to do [in the lab]? Somewhere a cable has broken--you must find out why and how. Some drunken repairman didn't connect a wire, and you must discipline and explain. Repair. . . . Test. . . . Argue with the supplymen--this is our science for you."[8]

Victor is the antagonist, but we are given insight into what has made him so. He is still friendly with Lobanov in this conversation: "And after all this--there are people, characters, with whom you must deal. Someone needs to make some more money,--you can't feed him with ideals. Someone is envious. . . . Another takes bribes, yes, just like in Chekhov. Each is satisfied with his ability; no one is satisfied by his position."[9]

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[7]A. F. Britikov, "Evol'yutsiya nauchno-fantasticheskogo romana," *Istoriya Russkogo Sovetskogo Romana* (Moscow: Nauka, 1965), II, p. 165.

[8]D. Granin, *Iskateli* (Leningrad: Sovetskiy pisatel', 1960), pp. 23-24.

[9]*Ibid.*, p. 27.

Another character, one of the "good guys," speaks to a laboratory assistant: "if, despite my predictions, your Lobanov achieves anything real, if somewhere he cracks our hide-bound system, then I'm his ally."[10] Towards the end of the novel, Lobanov asks the chief engineer "forgive me for my frankness, but doesn't it seem to you that such people as Potapenko and Dolgin [another villain] hinder the technical progress of the system?"[11] The chief agrees, but adds "Their positions are secure. It would take a great struggle to conquer them. I don't have the strength."[12]

The conflict is not between individualism and the collective, but between good and bad collectives, for the bad guys are just as well organized as the good guys. Essentially, the problem is that Potapenko and his ilk are mortal humans with human faults and Lobanov is a superidealist. At least, that is how a bourgeois critic might evaluate the novel, but to the author and to Soviet critics, this is the problem repeated from *Poyas;* Potapenko is an ordinary, degenerate human. Lobanov is a Communist. The author shows that in the large Soviet system there is a tremendous amount of inertia, composed of Potapenkos and Tonkovs and their henchmen, which is difficult to overcome. At the end of the novel there is no suggestion that it will be overcome.

Three years later a very similar sf work was published, Dudintsev's *Not by Bread Alone*. It differs in that the "inertia" is even more

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[10] *Ibid.*, p. 64.

[11] *Ibid.*, p. 333.

[12] *Ibid.*, p. 334.

powerful, and the hero is "framed" into a prison sentence. He is released by one of the judges who sentenced him and is rehabilitated along with his invention, but the Potapenkos, or Drozdovs in this story, are still in power at the end of the novel. Good did not destroy evil; it merely thwarted it.

Granin published *Idu na grozu* ten years after *Those Who Seek*. It is similar to the first but much milder on the "hidebound" system although very pointed about Stalinism and the fossilized science inherited from the "personality cult." One of the characters, an older scientist, feels constrained even after the Twentieth Party Congress. He reflects that younger scientists, his pupils, can not understand him;

> . . . they didn't know his fears. None of them worked in those times when one had to be silent, when it was often impossible to say what one thought, when the outcome of scientific discussions was decided by some directive, when he, Golitsyn, feared to answer the letters of his foreign colleagues, when idealism was expressed by a formula.[13]

The hero, Krylov, during a discussion with some friends ". . . . with shame remembered how he himself, even then an intelligent lad, found some higher wisdom in an article by Stalin."[14] The novel is a generation-gap conflict which Granin ends by drawing a balance between the old Stalinist intelligentsia and the new post Stalin scientists: the old must change, while the young must slow its pace a bit. The hero, Krylov, is the Golden Mean which ultimately triumphs.

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[13] D. Granin, *Idu na Grozu* (Leningrad: Sovetskiy pisatel', 1963), p. 64.

[14] *Ibid.*, p. 133.

Most recent sf criticism is much more limited and seems to be a kind of warning rather than a genuine comment on contemporary society. "Eksperiment" by Kazakova is the reaction of a female sentimentalist to science; "Razgovor chuzhoy ten'yu" by Dneprov is a more serious manifestation of the author's literary goals:

> And here, one may suppose, is a boundless field of action for the artistic intuition of the artist who describes the future of people. . . . Surely, in order to not contradict reality, a writer must understand not only literary skills, but also, even if only in general outline, the essence of those scientific discoveries which will influence the lives of future generations. . . .[15]

Dneprov adds that the role of sf is that of propagandist and herald of scientific progress,[16] and another writer, Victor Saparin, states: "The sf writer is not a popularizor but an agitator and warrior for the development of science and the welfare of people."[17] Both writers apparently accept seriously their responsibility as engineers of human souls. They do not describe what they believe a future communist society ought to be; they attempt to discover the problems of the future and forewarn their readers of the dangers inherent in the development of technology if that technology is misunderstood and mis-applied.

The anti-Western or *zarubezhnyy plakat* usually vilifies non-communist national governments and no doubt conveys indirect satisfaction

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[15] A. Dneprov, "Tropy v neznaemoe," *Voprosy Literatury*, August, 1964, p. 71.

[16] *Ibid.*, p. 72.

[17] V. Savchenko, "'Pochemu' i 'dlya chego'," *Voprosy Literatury*, August, 1964, p. 78.

to the Soviet reader for living in a socialist state. The works which belong partially or wholly to this category are very numerous and almost always contain (1) a description of someone who had the misfortune to be born on the "wrong side" of the iron curtain or (2) a tale of sneaky capitalists trying to subvert or frustrate the USSR.

It is possible the second type of *plakat* was born out of the hostility displayed toward Russia during the 'twenties by most of the West and out of the not yet defunct dreams of world revolution; the German conflict reinforced this megalomaniac paranoia. Tolstoy's *Death-Ray* is the oldest example of this type in the sf I have read. The main character, Garin, is actually a Russian, but he emigrates and allies himself with an American capitalist, planning to conquer the world with his ray-weapon and American capital; he creates a monetary collapse in the United States and becomes dictator of America, but the masses revolt behind a Communist from Russia and depose him.

"Vechniy khleb" ["The Eternal Bread"] by Belyaev, "Glinyaniy bog" ["The Clay God"] by Dneprov and *Ostrov Erendorfa* by Kataev all contain mass uprisings which frustrate capitalist designs, but the danger of anti-communism is reflected more seriously in *GCh* by Dolgushin and Adomov's *Tayna* and *Izgnanie*. The first defends Russia against the inroads of Nazi Germany, the second against Imperial Japan and the last against world capitalism. Soviet intelligence agents shine in each plot. More recent examples of this literature are *Nevinnye dela* by Rozval and "Novoe oruzhie" by Savchenko in both of which the American government tries to develop weapons to destroy the Soviet Union but fails through

its own stupidity or the "one-upmanship" of the Russians.

There are no horror stories about a foreign invasion of the USSR or war between it and America or battles between Soviet and American spacemen.[18] Most of the anti-western stories are of the first type; that is, narratives centering on characters persecuted either by inhuman capitalism or by inhuman capitalism combined with repressive militarism. In "Ispol'nenie zhelaniy" ["Your Heart's Desire"] (1967) by Firsov a starving American scientist is given a wonderful house for his family and a machine which will give him anything he desires so long as he works well for a company designing parts of a bomb. Everything is fine for a time, but his work suffers from personal misfortune (the death of his child) and he kills himself to avoid being used by the company in a cruel experiment for failing his part of the contract.

Not only is American capitalism attacked: young doctor Popf in Argentina invents an elixir which will greatly speed the physical maturation process of animals and humans in Lagin's *Pat Ent "AB"* (1947). The doctor envisions cheap food for the masses, but his plans are frustrated by one of the six families who control the economy and want to keep food prices high in their monopoly. The elixir is stolen and used on children to produce automaton soldiers who can be trained (since they are immature mentally) to do any dangerous or villainous task. The doctor and a local Communist, Aneyro, who befriended him, are falsely accused of murder, tried in a rigged court and sentenced to death. They

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[18]Peter Yershov points out one exception: Belyaev's *Battle of the Ether*. I have not been able to obtain this account of war between the USSR and the USA.

are saved by a famous lawyer and by all the unions and popular political organizations which proclaim a general strike to force the government to order a new and fair trial which frees Popf and Aneyro. Unfortunately, the strike ends, and the capitalists return to power.

Probably the type plots and characters of the *plakaty* are not so amusing to the Soviet reader as to the Western; there are few that are purposefully amusing, though Varshavsky's "Indeks E-81" ["Index E-81"] (1964) tries: a millionaire, Faust, wrinkled as a pear, with a laugh like a squeaky water-faucet and too old and feeble to enjoy good food and sex directly, hires a tramp to enjoy them and transmit the sensations via mental transmitter, but when the tramp treats a Negro friend in a white restaurant and is subsequently hit over the head and thrown into jail by angry whites, Faust dies from a cerebral hemorrhage. This kind of *plakat* is enjoyable, and at the same time successful, for it makes the point about racial conflict and the moral depravity of capitalism under the cover of a joke--which denies argument or serious examination. All the *plakaty* select certain facts about the Western scene and distort them; when they do it seriously, the product is not too effective but when they joke, the result can be potent. Humor is a dangerous weapon.

All of the *zarubezhnye plakaty* are not Soviet; a few are written by American authors about conflict between the United States and Russia. *First on the Moon* (1958) by J. Sutton is a tale of the race between American and Soviet space vehicles to reach the Moon first; it reads like a James Bond adventure story. Four American astronauts take off in a secret rocket; one of them, it is later learned, is a Soviet agent, and

the American commander must discover which. A Russian ship tries to attack the American vessel in flight, but fails and crashes on the Moon, having used up too much fuel. One of its crew, an East German, survives and is brought to the American ship which landed successfully. A second Russian rocket arrives; its crew destroys the American ship, but is wiped out single-handedly by the American commander who had evacuated his ship earlier with his crew; the Americans occupy the Russian ship. When they discover a Soviet warhead is heading for them, the Communist agent strikes and kills two of the Americans; the East German, being a good guy at heart, sacrifices himself to kill the agent, leaving the commander to survive the warhead and welcome the next space-ship, which arrives with the Secretary-General of the United Nations who confirms the American claim to the Moon. This story, compared to Kazantsev's *Lunaya doroga,* emphasizes the relative non-violent attitude of Soviet sf.

A similar story of armed conflict and espionage may be found in *Twenty-first Century Sub* (1955) by Frank Herbert, but a real "G.I. Joe" story is "The Red Peril" (1928) by U.S. army captain S.P. Meek in which the council of seven commissars which rules Russia declares war against the whole world and almost wins it thanks to some ingenious weapons--indestructible bombers and biological warfare. American ingenuity triumphs, however, in the guise of a young army officer and a Russian emigré; the world is saved, and Russia itself revolts and overthrows the council of commissars.

There are no descriptions of people persecuted in communist nations; all the American anti-Soviet sf is set in the context of a "hot" war or in hostilities of a temperature considerably warmer than the "cold" war

relations of the past half-century. This is opposite to the anti-western *plakaty* which avoid the context of military conflict almost completely. At most, they adapt the still officially sanctioned myth of international worker solidarity and postulate strikes and internal conflicts in non-communist nations.

Most Soviet sf does not refer to the existence and operation of capitalism or a capitalist America in the future. Those stories which contain a reference to either usually accept their existence as a necessary evil or use them as backgrounds to remove a story from the Soviet context. There may not be a way to tell Dneprov's, with Soviet characters, "Formula bessmertiya," which describes the turmoil of a young man who discovers that his mother was an android, made by his father.

Sf horror stories, so common to "cheaper" American sf, but fairly unusual to Soviet, may be sublimated into foreign settings so that they escape being labelled "decadent, bourgeois literature." I have found few BEMs in Soviet sf, and with three exceptions, all the more reprehensible apparitions and grotesque tales that I read are *zarubezhnye plakaty*. Of the domestic BEM stories, one is by Bulgakov, who never appreciated the Revolution;[19] the second is Levada's play "Faust i smert'" which

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[19]The most horriferocious Soviet domestic BEM story is Bulgakov's "Rokovye yaytsa": a professor of zoology in Moscow in 1928 discovers a light ray which accelerates the growth of cells and increases the size of animal tissue. An ambitious (and ignorant) Sovkhoz director persuades the government to let him use the ray on chicken eggs before it is really tested. By mistake he uses reptile eggs. Russia would have been overrun by gigantic anacondas, crocodiles and ostriches but for an early frost which killed them off--not before an enraged mob has killed the professor. Bulgakov's description is worthy of any American or Japanese BEM story:

Zmeya . . . ukhvatila zubami Manyu [the Sovkhoz director's wife]

uses an abstract monster, and the third is "Soda-sol'ntse" ["Soda-Sun"] by Ancharov which describes a monster of the id, a psychological phenomena which is not flesh or steel. There are no Russian professors growing gigantic, man-eating beetles or spiders in their backyards; such stories are easily assessed as anti-social, as Bulgakov's "Rokovye yaytsa," and I doubt that many Soviet authors would care to have their work regarded thus. Yet, if there is a market for such fiction (as in the United States) and a willingness or need to produce it, then how can an author better avoid criticism than by placing his monster-story in a capitalist context and even meshing it with a revolutionary ending?[20]

> osedayushchuyu v pyl' zaplecho, tak chto vzdernula na arshin nad zemley. . . . Zmeya izvernulas'. . . . khvost' yeyo vzmel smerch', i stala Manyu davit. Vysoko nad zemley vzmetnulas' golova Mani, nezhno prizhivalis' k zmeynoy shkyoke. Izo rta Mani plesnula krov'yu. . . . is pod nogtey bryznuli fontanchiki krovi. Zatem zmeya vyvykhnuv chelyusti, raskryla past' i razom nadela svoyu golovu na golovu Mani i stala nalezat' na neyo kak perchatka na palets. (pp. 78-79, *Sbornik rasskazov* by Bulgakov)

The story is a satire on the Soviet system; but all its details are susceptible to a psychological as well as a political interpretation (if one is distinguishable from the other here).

[20]The emotional reaction aroused by a story such as "Glinyanyy bog" by Dneprov or "Mayor Vell End'yu" by Lagin is derived from either "repressed infantile complexes [which] have been revived by some impression, or when the primitive beliefs we have surmounted seem once more to be confirmed." The latter category refers to animistic beliefs of our less civilized ancestors which, however, are closely related to infantile complexes so that the distinction is frequently difficult to establish --according to Freud in "The Uncanny," *On Creativity and the Unconscious*, ed. Benjamin Nelson (Harper & Bros., New York), p. 157.

The reaction to the stonemen in "Glinyanyy" is based on fear of the dead (ghosts, ghouls and zombies), while the Martian monsters may arouse a fear for one's body; that is, what would the horrible creatures do if they were to grasp you with their slimy tentacles and pull you

"Glinyanyy bog" by Dneprov is set in a backward African country to which a French scientist travels to work in an isolated community in the desert with other scientists on a task about which he learns later--turning living people into stone monsters that are alive and obedient--granite zombies! The evil scientist who hired him plans to sell them to fascist governments as soldiers. The Frenchmen leaves the community and returns with a national-liberation group to fight with the peripatetic statues; he cuts off the supply of nutrient they must drink every few minutes to keep from "freezing" and dying and defeats the evil scientist.

Just as horrible as Bulgakov's serpents in "Rokovye yaytsa" are the mutated bears in Gansovsky's "A Day of Wrath" who threaten to destroy humanity. The main character is finally eaten alive. That the bears think and talk intelligently and even resemble humans somewhat make their carnivorous habits more frightening. The author has produced an excellent Freudian monster.

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to their drooling mouths? This fear for one's limbs or body is primarily the fear of castration.

There is a very definite market in America both among youth and adults for horror stories ranging from the juvenile BEMs to the more mature terror of Ambrose Bierce--all of which utilize with different success the techniques that Freud mentioned. If we can assume that Russians, even Soviet Russians, operate with psychosexual complexes similar to those of Americans, the existence of a market for BEM literature cannot be doubted. The difference between Soviet and American BEMs appears to be that the former are not born as deeply in the id.

A writer, Freud claims, can manipulate the reader by pretending to move in the realm of reality and then springing something uncanny (p.159). Sf is particularly suited to this, for its monsters are cloaked with a semblance of scientific explanation. Soviet BEMs are usually not too frightening, but that seems to be a result of composition rather than purpose.

These and other horror stories are not vehicles for exhibiting the evils of capitalism. Their development is a function of their authors' and readers' psychology; an anti-communist milieu removes them from Russian soil where their sowing would undoubtedly reap a storm of criticism. Imagine the review in *Literaturnaya Gazeta* of *Dracula* if Dracula were a kolkhoz commissar or a deputy of the Supreme Soviet! Critics would claim that Dracula is terribly bourgeois and reactionary. How could a decent Soviet author compose such a creation?

In addition to using capitalism in a displacement process, the philosophy of capitalism, identified malignantly, provides a convenient foil for the wilder adventure stories in the bibliography: "Kosmicheskiy bog," by Bilenkin, *The Garin Death-Ray*, "Soprikosnoven'ye" by Gansovsky, *The Amphibian* and *Golova Professora Douelya* by Belyaev. *Golova* is set in post World War I Germany where an evil Professor Kerner, after murdering his department chief, secretly cuts off the victim's head and restores it to consciousness, feeding it intravenously and piping air to its vocal cords for speech. Kerner forces the head to help him write articles and perform other experiments. Soon Kerner revives two other heads, male and female, from bodies he acquired at the morgue and ultimately attaches the female head to another female body. This composite person flees the evil Kerner who in a rage puts his pretty laboratory assistant into a private psychiatric prison where he expects she will die or become insane. Through a long chain of coincidences, she is rescued by the son of Professor Douel', who, with the help of a friend and the composite female, exposes Kerner and has him arrested for the murder

of Douel'. In despair, Kerner shoots himself. The unhealthy environment of capitalism in this story, or the opposition of capitalism to communist humanity in "Kosmicheskiy" and "Soprikosnoven'ye" provide a convenient peg on which to hang a plot, while respecting official demands for socialist criticism.

Does the id have a place in Soviet sf futures? Utopian sf, which is small in quantity but which provides the most complete hypotheses of the future, eliminates capitalism and monsters and almost any individual behaviour deemed socially harmful. In the plots there is little intra-personal conflict and less inter-personal conflict. For example, the hero of "The Trial of Tantalus" by Saparin lives at a time when there are no national boundaries; he is a member of a world organization fighting diseases on an Earth from which all the old dangerous bacteria and viri have been eliminated. New varieties develop, only to be conquered and controlled. There is no mention of social conflict.

Most of the utopian stories at least mention the demise of capitalism and international hostility. Some lecture on it, like Yefremov's *Andromeda*, "Professor Bern's Awakening" by Savchenko and "Tol'ko odin chas" ["Only One Hour"] by Firsov. Generally, in the utopias there is no violence between rational beings, little disease, no plagues. There is a much longer life-span, technology to satisfy every need, easy mobility of work and social position, complete and continuing education for all, numerous recreations, real art (no decadent Dadaism or Picasso or Moore), excitement for those who desire it in exploration, etc.--a paradise with no police and governed by scientists and engineers. In

Andromeda there is even an island for anarchists, megalomaniacs and nature-worshippers who cannot live in paradise.

Andromeda is the best example of a utopian novel of the sf read for this paper. The other utopian stories such as *Kumbi* by Gor and *Zvezda KETs* by Belyaev contain only fragments of the "good life." Why so little of Utopia? One might expect this category of sf to be overflowing with works by authors eager to depict glorious communism in the distant future; it should be the last word in human engineering.

Andromeda, whatever faults may be assigned to it, must be recognized as the product of a powerful imagination, able to create a large number of details and mold them into a narrative form. It is the expository, prophetic nature of the novel which is just as important (if not more important) than the adventures of the characters which are infantile compared with the profound monologues the characters occasionally deliver on the history of the next millenia.

The works most similar to *Andromeda* in the bibliography are *Reports from the 21st Century* by Vasil'yev and Gushchev and *Mechte navstrechu* by Lyapunov which are part fiction and part exposition. The most similar novel is *Zvezda KETs* by Belyaev, but in it the main character is more integrated into the utopia, about which there is considerably less exposition. *Kumbi*, far superior to either *Andromeda* or *Zvezda* in literary quality, contains much less utopian exposition than either and is entirely constructed around the main character.

Another novel similar to *Andromeda* in the catalogue of utopian details is Zamiatin's *We*, but the resemblance is accidental, for it is

really a satire, as was pointed out above; its "future" is a direct attack on Lenin and the Revolution. It is the closest example I have found in Soviet sf to an "anti-utopia," but genuine anti-utopian works which separate their "futures" from contemporary personalities are apparently produced only in the West, the most famous being the English *Brave New World* and *1984*. These emphasize a marked deterioration of libertarian values either through a brutal megalomaniac, one-party state or through a permissive system which encourages pre-natal conditioning and sublimation of aggressive desires into orgiastic drug and sex activity.

American sf has produced several adaptations of these English themes in the post World War II era: "How-2" by Simak, *The Status Civilization* by Sheckly, *Of Men and Monsters* by Tenn, and *The Space Merchants* by Pohl and Kornbluth. The first presents a world in which everyone has so much spare time, they must have hobbies to complete themselves psychologically; the main character constructs a robot with a reproductive urge, and a revolution begins: "We'll build robots. Lots of robots . . . we'll go on manufacturing How-2 kits [hobby kits that everyone uses to fill their spare time] only they'll be pre-assembled to save you the trouble of putting them together. . . . You won't have to worry about a thing the rest of your life."[21] Perhaps this society has too much of a "good thing."

The Status Civilization describes two planets: Earth, a middle-class culture with rigid social mores where every man is his own

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[21]Clifford Simak, "How-2," *Five Tales From Tomorrow*, ed. T. E. Dikty (New York: Crest Books, 1957), p. 99.

policeman, and Omega, to which all Earth's criminals are exiled and where evil is worshipped, literally, rather than good. The only similarity is enforced ignorance of the law on both planets; on Earth, robots wield power, while on Omega the oldest residents control society.

Of Men and Monsters describes an Earth conquered by gigantic monsters (which are never really described). Man has become as rats or mice to them, infesting the walls of their enormous dwellings as tribes (or nests) which fight each other and make forays into "monster territory" (the interiors of the gigantic dwellings) for food and assorted junk. One tribe, still possessing some scientific traditions decides to fight the monsters. How? By concealing themselves on one of the monsters' space-ships and travelling to different planets, leaving some of their number on each planet on which the space-ship lands. The Universe is theirs! Do you remember how rats spread around the world on human sailing-ships?

One of the most widely read anti-utopias is *The Space Merchants* which extends the American big business ethic to a logical future: a world controlled by advertising companies and their account industries. The American congress is composed of representatives with voting power based on the wealth of the respective firms they represent. The average citizen is a consumer manipulated by the advertising agencies with little personal initiative. There are commercial wars fought between enterprises for contracts, and the consumer is caught in the middle; the world is so polluted and populated that even the heads of advertising agencies have less physical comforts than the average American today; their luxury is

not goods, but power. It is an ugly world, devoted to the God of Sales, and the authors' witticisms do not make it amusing; rather, they make it grotesque.

> . . . there was the canteen where I got Crunchies on easy credit. The Crunchies kicked off withdrawal symptoms that could only be quelled by another two squirts of Popsie from the fountain. And Popsie kicked off withdrawal symptoms that could only be quelled by smoking Star cigarettes, which made you hungry for Crunchies. . . . I'd been paid again and my debt [to the company] had increased eight dollars.[22]

The one novel in twentieth-century American sf which remotely resembles *Andromeda* or *Zvezda KETs* or *Kumbi* is B.F. Skinner's *Walden II*. Perhaps it is easier to write and read about problems than about accomplishments. In the twentieth century there are and have been so many political obstacles to human happiness that any writer who describes a glorious, beautiful future for man would either be considered a religious fanatic, an advertising agent, or daft. It is fairly certain that his stories would find little acceptance in the high-class sophisticated, cynical American sf market unless they contained much more developed characters and more integrated plots and at the same time a bit more adventure or mystery or terror than in *Kumbi*. The lower class sf market would probably be bored and unreceptive to any form of expository fictional utopia.

Soviet writers must find it difficult to publish anti-utopian stories, for they would be denying the eventual triumph of communism--

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[22]F. Pohl and C. M. Kornbluth, *The Space Merchants* (New York: Ballantine Books, 1960), p. 74.

still an important theme in Soviet literature. Yet the style of *Andromeda* can hardly be considered worth emulating by professional writers and by those who are sufficiently realistic to respect the problems of the future; for them the words of Dneprov are important:

> From one side I see the basic goal of this genre as a call for the rational and humane use of scientific achievement and from the other as a warning of depraved, mistaken and inhuman applications of science and technology.[23]

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[23] A. Dneprov, "Tropy," p. 71.

CONCLUSION

Soviet sf differs from American in a variety of ways, some of the more important being that it uses less violence, less horror, less sex, more profound love in those stories which use a love theme extensively and different ethics than may be found in American sf. There are similarities in character types and concern for human welfare (the latter being more indirectly apparent in American sf). Some of these differences are ideologically motivated; some are not. It is easy to appreciate the patriotism of *GCh* or *Tayna dvukh okeanov*, but what is the motivation for the psychology of "Soda-sol'ntse" or "Tam, gde konchaetsya reka?"

Does sf affect its readers; is it potent as social criticism? A number of stories from both Russia and America are very tendentious; their authors are obviously trying to influence their readers, but the consensus of American authors in *The Science Fiction Novel* edited by Basil Davenport is that they have failed, primarily because of their limited audiences. However, "doomsday" sf, *On the Beach, Dr. Strangelove* and *Fail-Safe* which have all been made into films, have certainly been seen or read by a large part of the public; it is possible to argue that they have played some part in stimulating anti-war sentiment in America. Granin's and Dudintsev's novels sparked no little controversy when they appeared; they had an obvious impact on the Soviet public scene.

The sf element in these widely-read works is "played down"; they are all fairly real in that they are not set as traditional sf utopias

or anti-utopias in the remote future. They are all very relevant to today.

Anti-utopias do not appear in the Soviet Union; utopias are limited by conditions discussed above and by the usurpation of their potential market by political sf: government economic planning which usually forecasts by the end of a five-year plan greater production, more benefits for the workers, etc. One of them, Khrushchev's seven-year program was even accompanied by a preview of the next twenty years. Khrushchev in 1961 proclaimed that by 1980 would be achieved the "transition to communist social relations--the most complete form of relations between free, well-developed, highly conscious people . . . relations which are based on friendship and comradeship."[1] Communism would surpass the performance of capitalist economies and would be employed for the benefit of the people, rather than for the welfare of a few! Can sf compete with this?

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[1]N. S. Khrushchev, "Otchet Tsentral'nogo komiteta kommunisticheskoy partii Sovetskogo Soyuza XXII s'ezdu partii," (Moscow: Gospolitizdat, 1961), p. 97.

ANNOTATED SOVIET SCIENCE FICTION

ANNOTATED SOVIET SCIENCE FICTION

The following is a list of the works used in the preparation of this paper. It should be noted that it does not contain a fair sampling of Soviet sf. It represents only the majority of that production which was available when I was searching for a bibliography. The largest part belongs to the 1960's; the next largest to the 1920's; the decades between these years are represented sketchily, for little material was available.

Abramov, Aleksandr Ivanovich. (1900-) Finished the Literary Institute of Bryusov and the Institute of Foreign Languages; has worked on the magazines *Internatsional'naya Literatura* and *Teatr* and was head of the department of literature and art on *Vechernyaya Moskva*. His first story was published in 1922, and his first novel was an sf story *Gibel shakhmat* (1926). His son, Sergey Aleksandrovich (1942-) is in the aviation industry and began to publish in 1962 (first sf story "Novyy Alledin" - 1966). With his father he wrote "Happy End," found in *NF (Al'manakh nauchnoy fantastiki)*, no. 7. In it two scientists devise a machine to predict the future; they see death in a few minutes for one of the people on whom they are testing the machine and persuade him to avoid the danger. The man is killed anyway because the machine anticipates only possible futures.

Adamov, (real name: Gibs) Grigory Borisovich. (1886-1945) Edited Social-Democratic newspaper *Yug;* had a collection of essays published

in 1931; wrote three sf novels glorifying the achievements of Soviet science and technology. Examined were *Tayna dvukh okeanov* [*The Secret of Two Oceans*] (1939) and *Izgnanie Vladyki* [*Exile of the Ruler*] (1946). The first describes underwater exploration and adventure with underwater settlements and advanced submarines; the plot revolves around a potential struggle with Japan over control of the oceans. The heroes are a bit flat, for the paper and ink that might be used to inflate them is directed instead towards descriptions of underwater flora and fauna. The second work is set in the more distant future when the foreign danger is capitalist encirclement, and the real danger is betrayal from within which threatens the construction of a number of wells drilled into the ocean floor to tap the Earth's warmth, which will heat an ocean current and defrost the Arctic coast of Russia. The second is perhaps not so well written as the first.

Agapov, Boris Nilolayevich. (1899-) Poet, essayist, film scriptwriter, a founder of the "constructivist" literary group of the 1920's and an initiator of Soviet industrial sketches. The one work read, *Tekhnicheskie Rasskazy* [*Technical Stories*] (1936), is much more similar to popular science literature than sf; it is a collection of sketches glorifying technical achievements of current Soviet science and suggesting directly and by implication what the future may hold.

Al'tov, Genrikh. Read: "Klinika Sapsan" ["Sapsan Clinic"] in *NF*, no. 6

and "Sozdan dlya buri" ["Made for the Storm"] in *Fantastika 1967*. The factor common to both is a hero struggling against the Unknown to advance human knowledge. Both are good soap operas.

Ancharov, Mikhail. Read was "Soda-solntse" ["Soda-Sun"]; the narrator is a paleontologist while the most important character is a "jack-of-all-trades" who acts as a gadfly, driving people to study and learn--mostly about themselves. The plot revolves around a search for the Devil, and there is more philosophy than action in the work Found in *Fantastika 1965, part 3*.

Anfilov, Gleb. Read: "EREM" in *Fantastika 1963*, an anthropomorphization of a robot perishing in the performance of his duty.

Bakhnov, Vladlen. (1924-) Writer by profession; has had three volumes of satiric verse and essays published, two film scenarios and an sf novel *How the Sun Was Extinguished*. Read were "Robniki" ["The Robotniks"], "Rasskaz so schastlivym kontsom" ["Tale With a Happy End"], "Koe-chto o chyortovishchine" ["Something About Devilry"], and "Rasskaz cheloveka, kotoryy byl geniem" ["Story of a Man who Was a Genius"]--all in *Fantastika 1966*, part 1. All are very short, amusing satires directed at a variety of targets: the first at the folly of fads, the second at extreme subservience, the third at the mechanics of bureaucratism, and the fourth at academic infallibility and gullibility. The last is a joke several hundred words long about a scientist who took a pill which made him a genius for five minutes: during the first minute, he realized his research project

was worthless; during the second, he realized he was not at all gifted; in the last three he wrote a brilliant resignation. Like the other stories, it is clever, well-written and sarcastic.

Belyaev, Aleksandr. (1884-1942) Plagued by TB during much of his life, he studied law and wrote newspaper articles until 1925 when he abandoned the legal profession and devoted himself to writing; by the time of his death, he had written more than fifty novels, and over one million copies of his works had been published. He is the acknowledged father of Soviet science fiction. Read were "Vechnyy khleb" ["The Eternal Bread"] (1928), *Golova professors Doue'lya* [*The Head of Professor Doyle*] (1925), *Zvezda KETs* [*Star KETs*] (1936)--all in v. II of his selected works, *The Amphibian* (1928)--separate publication, "Over The Abyss" in *Destination: Amaltheia,* "Invisible Light"--found in *Russian Science Fiction 1963,* and "Hoity Toity"--found in *A Visitor from Outer Space.* In all his stories may be found a startling scientific device or fact, relatively weak plots and character development and occasionally brilliant descriptive passages.

Bilenkin, Dmitry. (1933-) Finished the Faculty of Geology at Moscow University as a geo-chemist; began to publish in 1958 articles, stories and popular-science books. *Marsianskiy priboy* [*The Martian Surf*] is his first sf collection. In it were read "Marsianskiy priboy," "Poyavlenie zhirafy" ["Appearance of a Giraffe"], "Oshibka nevozmozhno" ["A Mistake Is Impossible"], "Opasnost' spokoystviya" ["The Danger of Quiet"], and "Kosmicheskiy bog" ["Cosmic God"]. The

first four are so didactic in nature that they may remind the reader of medieval "morality plays." The last is an adventure story in the future into which is woven philosophical discussions that are neither pro-socialist nor pro-soviet, but simply opposed to any political activity which suppresses free thought.

Blinov, N. and Lubyanski, Yu. Read: "Solntsa sil'nee," a technically well-done but less than meaningful story. A young lab worker sacrifices herself to stop a nuclear pile explosion; she dies without succeeding, but her boss follows her and extinguishes the danger. At the very beginning of the story, the boss helped a beetle on its way--a very "symbolic" action, but how does it relate to the rest of the story?

Bulgakov, Mikhail Afanasevich. (1891-1940) By education--a doctor, by profession--a dramatist and belletrist; began to publish in 1919. He frequently used sf devices in plays and stories as vehicles for satire; e.g., "Adam i Eva" ["Adam and Eve"] (1931) and "Blazhenstvo" ["Bliss"] (1934). Read were the play "Ivan Vasil'yevich" (1935) and the story "Rokovye Yaytsa" ["Fatal Eggs"] (1925). The play uses a time-machine to compare Bulgakov's Soviet Russia with the Russia of Ivan the Terrible. The story is one of very few Russian sf horror stories. It could easily be converted into a Japanese monster film of the type that was fairly popular a few years ago in North America.

Bulichev, Kirill. Historian. Read: "Life Is so Dull for Little Girls" --found in *Russian Science Fiction 1968*, "Kak nachinaetsya navodneniya"

["How a Flood Begins"] and "Khokkeisty" ["The Hockey Players"]--found in *Fantastika 1967*. The common features of these works are exhibitions of great imagination and plots designed solely for entertainment rather than for any didactic function. In "Khokkeisty" a group of cosmonauts land on a planet covered by strange trees cloaked in winter snows; to pass the time the men construct a children's game of table-hockey, carving the players from pieces of wood fallen from the trees. When Spring arrives, the trees outside the cosmonauts' camp suddenly turn toward the sun, and the wooden figures on the hockey board inside the shelter begin to move by themselves.

Dneprov (real name: Mitskivich), Anatoly Petrovich. (1919-) Physicist. Read: *Formula bessmertiya* [*Formula For Immortality*] which contained "Formula bessmertiya," "Lyudvig," "Glinyanyy bog" ["The Clay God"], and "Litsom k stene" ["Face to the Wall"]; "The Maxwell Equations"--found in *Destination: Amaltheia*, "Sluchaynyy vystrel" ["The Accidental Shot"]--found in *Fantastika 1964*, "Tam, gde konchaetsya reka" ["There, Where the River Ends"]--found in *Fantastika 1966*, part 2, "Siema"--found in *More Soviet Science Fiction*, "The Heroic Feat"--found in *Russian Science Fiction 1968*, "The Purple Mummy"--found in *Path into the Unknown*, "Kogda zadayut voprosy" ["When They Give Questions"]--found in *Fantastika 1963*, and "Razgovor s chuzhoy ten'yu" ["Conversation with an Alien Shadow"]--found in *Chyornyy stolb*. Most of these stories use scientists as main characters who are involved in intense emotional or intellectual situations,

allowing the author to thoroughly display their personalities. They are usually very human and effective in conveying the author's point which is individual and personal rather than social or political.

Dolgushin, Yury. Read: *GCh* [*Generator Of Miracles*], a novel which tends to dwell more on technology than on its main characters. Its plot is constructed around the imminent possibility of war between Soviet Russia and Germany.

Dubrovin, Yu. Read: "Eti troe" ["These Three"]--found in *Luchshiy iz Mirov*. A small boy stops before two scholars arguing on a park bench. He interrupts their discussion with pertinent, brilliant remarks. Finally his parents come for him, and the scholars discover the boy and his parents are time-travelors from the future. The "future" is a small boy who knows the thoughts of the geniuses of all time as a boy of today knows 2x2=4.

Dudintsev, Vladimir Dmitrievich. (1918-) Graduated the Law Faculty of Moscow U. in 1940; was associated with *Komsomolskaya Pravda* 1946-1951; was severely criticized in 1948 in *Literaturnaya Gazeta;* was criticized again in 1957 by the Writers' Union for *Not by Bread Alone;* since 1948 has written a number of short stories. The novel and "A New Year's Fairy Tale" (1960)--found in *Russian Science Fiction 1963* were read. The latter is a short story heavily impregnated with symbolism and the same kind of idealism as to be found in *Not by Bread Alone*.

Eli, Teo. (real name: Il'in, Fyodor N.) Scientist. Read: *Dolina Novoy Zhizni* [*Valley of New Life*], written in 1922, first published in 1928 (first part only). This is the best sf product of the material included in this list from the 1920's in terms of artistry, unity of composition, etc.; it is one of the very best works in the entire bibliography.

Eydel'man, Natan. "Pra - pra . . ." ["Great - Great . . ."] - found in *Fantastika 1965*, part 3. A space station above the Earth begins to receive a television transmission from a distant star (discovered later to be a small artificial planet), showing a segment of the history of mankind four thousand years ago; gradually the documentary moves backward to the beginning; the viewer's screen becomes blank, and the transmission ends. The best explanation is that the small planet is an archive which, having acquired a document, sends a copy back to the old owner.

Firsov, Vladimir Nikolayevich. (1925-) Finished the Moscow Polygraphical Institute; is now editor of foreign sf and popular science texts for *Mir;* appeared in print in 1954; first sf story "Uzhe tridtsat' minut na Lune" published in 1966. Read were: "Ispolnenie zhelaniy" ["Your Heart's Desire] in *NF*, no. 7, "Bunt" ["Revolt"] - in *Fantastika 1966*, part 2, and "Tol'ko odin chas" ["Only One Hour"] - in *Fantastika 1967*. The last describes a dedicated German communist waiting to be executed by the Nazis; suddenly he is transported to the 25th century by scientists of the world communist

state. His wounds are healed, and he is taken on a tour of Moscow. At this point it becomes the difficult duty of the scientist who accompanies him to tell him they must return him to be executed, for the past cannot be disturbed. This is a well-written scene. Eventually, the 20th century communist understands and acquiesces.

Gansovsky, Sever. Read: "Shest' geniev" ["Six Genis"] - from *Shest' Geniev*, "Ne yedinstvennye sushchie" ["We Are Not Alone"] - from *Luchiy iz mirov*, "A Day of Wrath" - from *Path into the Unknown*, "Soprikosnoven'ye" ["The Touch"] - from *NF*, no. 1, "Demon Istorii" ["Demon of History"] - from *Fantastika 1967* and "Novaya Signal' - naya" ["The New Signal"] from a book of the same title. These stories vary greatly in theme, plot and artistry. "Wrath" is an sf horror story, while "Shest'" is a powerful anti-capitalist *plakat* and "Soprikosnoven'ye" is the story of a young boy in the turmoils of adolescence. "Sushchie" is a crudely drawn *plakat* of idealism, and "Demon" is a weak creation bound up with the "inevitables" of history.

Glebov, (real name: Glebov-kotel'nikov), Anatoly Glebovich. (1899-1964) Playwright; uses contemporary, realistic themes; first play published in 1919. Read: "Bol'shoy den' na planete Chungr" ["Great Day on the Planet Chungr"] from *Fantastika 1962*. It is a clever polemic against Yefremov's "Heart of the Serpent."

Gor, Gennady. (1907-) Ethnologist; specialist in the art and folklore of the northern peoples of the USSR; has written several novels and

short stories about them; recently began to write sf. Read: *Kumbi*, "Strannik i vremya" ["A Stranger and Time"] in *Fantastika 1962*, "The Boy" in *Path into the Unknown*, "Uera" in *NF*, no. 1, and "A Dweller in Two Worlds" in *Russian Science Fiction 1968*. Gor's creations are endowed with rather complex plots which bear heavily on their length. In "Uera" he attempts to weave five stories together in a short story form and does not really fail, but neither does he succeed. The story carries with difficulty six characters: one Earthman who provides a link between Earth and the planet Dil'neya and a space station, and five Dil'neyans, two of whom are located on Dil'neya, two who are on a space station and one who travels between Dil'neya, the space station and Earth, on the last of which he leaves a book to be found by the Earthman-narrator. In all of Gor's stories there is at least one character who leads a double-life, whether it be time-traveling or mental transformation into another person or having his "essence" copied and carried off--as occurred to a character in "Uera."

Granin, Danil Aleksandrovich. (1919-) Electrical engineer, commanded a tank squadron in WWII; was criticized by the Party for "Sobstvennoe mnenie" (1957); has written mostly short stories and sketches. Read were: *Those Who Seek* [*Iskateli*] (1953) and *Idu na grozu* [*I Will Go to the Storm*] (1963). Both are political-idealist novels in the spirit of *Not by Bread Alone*, qualified for the bibliography because they are set in a technological future. As in Mayakovsky's plays, the sf element is a vehicle for social criticism.

Grigor'yev, Vladimir Vasil'yevich. (1935-) Finished the scientific institute of Bauman and participated in a number of expeditions, including one to the Tungus "catastrophe"; first sf tale was published in 1962. Read were: "A moglo by i byt" ["It Could Have Been"] in *Fantastika 1963* and "Dvazhdy dva starika robota" ["Two Times Two"] in *Fantastika 1964*. The first is a clever, half-sad, half-amusing story of a boy-genius who invents a time-machine; during one of the daily, nerve-wracking arguments between his parents, he travels back not to just before the argument as usual, but by mistake back to before his parents had met. When they do meet, they each have a sudden premonition of discord, and depart from each other, never to marry.

Gromova, Ariadna. Read: "Glegi" ["The Glegs"] in *Fantastika 1962*. It is interesting because it is one of the very rare stories in which Soviet cosmonauts tangle with something they cannot handle.

Gurevich, Georgy Iosifovich. (1917-) Trained as a building engineer but writes sf professionally; concentrates on problems of climactic changes, biology, star-journeys, etc. Read: *Na prozrachnoy planete* [*On a Transparent Planet*] (1963) and "Infra Draconis" in *A Visitor from Outer Space*. The novel is an sf-popular science text dealing with the application of future techniques in geology. The story describes an interstellar journey by seven cosmonauts who discover a world, covered by water, at the end of a sixteen year trip in space. The commander, an old man, decides to investigate the ocean in a bathysphere. He perishes on the bottom of the sea but informs the

crew of the spaceship of the existence of an underwater city before he dies. The Earthmen vow to return.

Illichevsky, S. Read: "Vremya Ischezlo v Arizone" in *Fantastika 1962*. This is a very short, amusing, anti-capitalist plakat.

Kataev, Valentin Petrovich. (1897-) Fought in WWI and the Civil War; appeared in print before the Revolution; is primarily a satirist and humorist; worked on *Pravda* and with Ilf and Petrov; most of his work, like that of Aleksey Tolstoy, Mayakovsky and Bulgakov, is not sf; he has always been popular in the Soviet Union. Read was *Ostrov Erendorfa* [*The Island of Erendorf*], an sf spoof on Il'ya Erenburg.

Kazakova, Rimma Fyodorovna. (1932-) By education an historian; began to write poetry in 1955 of romantic idealizations about nature and labor and love; by 1962 had three volumes of verse published. The one short story here is thus unusual in form: "Eksperiment" - found in *Fantastika 1965*. Its theme is consistent with her other works, however, for it is not difficult to see in this amusing story a not so amusing cry of resentment against social values which pervert love.

Kazantsev, Aleksandr. (1906-) Professional Engineer with numerous published sf works. Read: *Lunaya doroga* [*Lunar Road*] (1960), "A Visitor from Outer Space" and "The Martian"--both in *A Visitor from Outer Space*. The novel describes a race to the moon between the

USSR and the USA. The two stories are the author's attempt to discover something more in the Tungus meteorite explosion of 1906, than a natural phenomenon. The first story is accompanied by voluminous footnotes to add importance to the story presented in the main text; it has provoked much controversy since 1946.

Kolpakov, A. Read: *More mechty* [*Sea of Dreams*] (1964) which contained two stories, the first apparently intended to assert that a Soviet rocket will land on the moon first while the second, "Al'fa Eridana," describes a cosmonaut of the future too old to find a job riding rockets. He finally manages to be accepted by another interstellar expedition and in the end proves his value by saving the lives of the entire expedition on a distant planet.

Kol'tsov. A. Read: "Chyornyy svet" ["Black Light"] in *Luchshiy iz Mirov*. It is a love story between people in the future communist society.

Krapivin, Vladislav. Read: "Meeting my Brother" in *Path into the Unknown*. This is a well-written story which scales a great interstellar adventure down to the emotional need of a young boy, an orphan, who wants to believe his "brother," a cosmonaut, is alive rather than dead. All the adults cooperate to delude the boy and satisfy his need for family.

Lagin, Lazar' Iosifovich. (1903-) Party member since 1920; studied at the Institute of National Art of Marx; joined the Komsomol press as a poet in 1922; published a children's fairy-tale *Starik Khottabych*

in 1938; since then has published a number of novels and stories in the genre of the free-form pamphlet using satire, fantasy and adventure directed mainly at anti-human capitalism. The works read for this bibliography, the novel *Pat Ent "AB"* [*Patent "AB"*] (1947) and the story "Mayor Vell End'yu" ["Major Well Andyou"] in *Fantastika 1962* seem to be excellent examples of Lagin's work as explained by the *Kratkaya Literaturnaya Entsyklopediya*. The novel described the attempt of Argentine capitalists to pervert an invention which would supply mankind with plentiful food into a tool of domination. The short story uses Wells' *War of the Worlds* as a reference point and inserts an English aristocrat into the conflict who betrays his nation and all men by joining forces with the Martians.

Larionova, Ol'ga Nikolaevna. (1935-) Engineer by profession; first tale "Kiska," published in 1964. Read: *Leopard s vershiny Kilimandzharo* [*Leopard from the Heights of Kilimanjaro*] in *NF*, no. 3, and "Planeta kotoraya nichego ne mozhet dat'" [The Planet which Could Not Give Anything"] in *NF*, no. 7. Both are didactic, and the short story is not too successful. The novel, in structure and theme, is unified and potent, while the story's moral is grafted on: Explorer #27 (female) of an expedition from the planet Velikaya Logitaniya, which collects tribute from all planets capable of giving tribute, becomes attracted to the planet she is investigating, Geya, and stays behind secretly when the expedition leaves. The story is well done to this point, and the author reaches a respectable climax when she

reveals the beautiful explorer to a Geyenite. Unfortunately, the scene switches in the next sentence to the world of Velikaya Logitaniya, many years after, where the reader is informed of #27's saint-hood during an artless dialogue between an Earthman and his Logitanian girl friend who tells him (as they are admiring a statue of #27) how #27 started a galaxy-wide rebellion which destroyed the rulers of Velikaya Logitaniya. Bad!

Levada (real name: Kosyak), Aleksandr Stepanovich. (1909-) Ukrainian poet and playwright; first work published 1925; has written mostly plays but did co-author one novel and has written film-scripts and librettos. His play "Faust i smert'" (1960) found in *Teatr* is a product of his multi-faceted talent. The element of sf within it is secondary to the didactic intent of the play, for the depiction of a machine corrupted by its master is meant to be instructive.

Lyapunov, Boris Valer'yanovich. Read: *Mechte navstrechu* [*To Meet a Dream*] (1958). This is more similar to popular science than sf, but it contains enough adventure and fiction to be accepted as sf. It is written as though it were a history of cosmic exploration up to its "publication" in the twenty-first century. It is the most complete attempt in this bibliography to provide a blueprint of the future exploration of our solar system. In its use of "historical perspective," it resembles Isaac Asimov's *Foundation* trilogy or Robert Heinlien's works which relate history from 1951 AD to 2600 AD.

Maksimov, German. Read: "Posledniy porog" ["The Last Threshold"] in *Fantastika 1965*, part 3. Here a mechanic in the repressive society of the planet Sim kri constructs a house of death in which the old, the incurably sick, and the unemployed who feel themselves a burden on their friends and society may seek a painless death. It becomes instead a place of execution for political dissedents; the mechanic cannot ignore this perversion and decides to destroy his creation, but he can do so only by sacrificing himself--which he does.

Mayakovsky, Vladimir Vladimirovich. (1893-1930) Poet and playwright; published first verse in 1912, first play in 1913. His plays all tend toward cubism and fantasy, combined with a large dose of didacticism, flavored with satire and sarcasm. The two plays included in this list, "Klop" ["The Bedbug"] (1928) and "Banya" ["The Bathhouse"] (1930), use the element of sf as a tool for satirical mass-agitation.

Mikhaylov, Vladimir. Journalist. Read: *Osobaya neobkhodimost'* [*A Special Necessity*] (1963), an adventure of five cosmonauts on a trip to Mars. Their ship is damaged, and they decide to land on Demos (one of Mars' satellites) to repair it. They are trapped by the automatic mechanisms of the moon which is really a star-ship, abandoned by its crew, but still operating by computers. The cosmonauts are finally able to leave in a small craft the star-ship was carrying. The story is not badly done, and it is "Soviet": the antagonist is Nature or the unknown; there is little inter-personal and less intra-personal

conflict among the protagonists and there is some moralizing about the place of themselves in history.

Mirer, Aleksandr Isaakovich. (1927-) Building engineer by trade; first story (1965) was sf. Read: "Znak ravenstva" ["The Equal's Sign"] in *NF*, no. 7, and "Obsidianovyy nozh" ["The Obsidian Knife"] in *Fantastika 1966*, part 1. In both the author reveals considerable powers of description. In the second story a modern man's psyche is sent back to prehistoric times; the author's description of the operation of primitive senses such as smell and crude predilections toward violence and tribalism are extremely potent, quite as effective and more tangible then Golding's *Lord of the Flies*. The description in the first story of a man who loses his personality orientation when subjected to an experimental cinematographic technique is also very convincing.

Obruchev, Vladimir Afanas'yevich. (1863-1956) Geologist and geographer; explored large parts of Central Asia and Siberia; was academician from 1929 and president of the USSR Geographical Society from 1947; has published mostly scientific works, but also sf and adventure novels and popular science texts on geology. The two novels included here, *Plutoniya* (1924) and *Sannikov Land* (1926), combine adventure with a considerable amount of scientific information about geology and paleontology, migration habits of birds, etc. They are quite similar in that both describe expeditions of scientists to "forgotten" lands inhabited by ancient animals and primitive people. The

second is an improvement on the first in terms of style but is perhaps not so exciting.

Okhotnikov, Vadim Dmitrievich. (1905-1964) Finished the Leningrad sound-film institute in 1930; is the author of several inventions in the technology of sound recordings; began to publish in 1946 and has written a number of sf stories in which his technical ideas relate closely to reality. The only one of his works read was "The Fiction Machines" in *Russian Science Fiction 1963.* It is an amusing, well-written sketch of a mathematician who constructs elaborate electronic devices to help him write fiction. The last machine fills three rooms and transfers thought directly to paper, but all that emerges is meaningless stream-of-consciousness, and the mathematician has a nervous breakdown. While he is recovering, he describes the story of his adventure with the fiction-machines with an ordinary fountain-pen.

Orlovsky, Vladimir. Read: "Revolt of the Atoms" (1927), found in *Amazing Stories,* April, 1929. A German chemist creates a nuclear reaction which grows into an "atomic vortex" he cannot control; it grows into an enormous ball of burning energy, wandering across Europe, engulfing everything into itself. The world is saved by a freak of Nature and a Russian engineer who takes the only effective action against the vortex.

Podol'ny, Roman. Read: "Potomki delayut vyvody" ["Descendants Make the Choice"] and "Nashestviye" ["Invasion"] in *Fantastika 1966,* part 1,

and "Puteshestvie v Angliyu" ["Journey to England"] in *Fantastika 1964*. These are very short stories, and the first two are somewhat amusing, if a bit clumsy; the third is not amusing at all. It relates a conversation between the satirist Swift and an arch-bishop to whom Swift confesses that he is a "Gulliver" from the stars who, imbued with idealism when he first saw Earth, left his star-ship to stay and guide the world on a peaceful path. Soon, he discovered his efforts were of no value, and he became deeply unhappy, helpless before both giants and Lilliputians.

Poleshchuk, A. Read: "Tayna Gomera" ["The Secret of Homer"] in *Fantastika 1963*. A literature teacher gives a survey course to a class of science students; one of them becomes so interested in Homer that he constructs a time-machine to discover what happened to Ulysses after he took back his possessions from the suitors. He and the teacher travel back to Homer's time, find the blind poet and discover that Homer is Ulysses, punished by the relatives of the suitors he destroyed. The young science student is so affected that after setting the controls to take the time-machine with the teacher back to their own time-period, he remains with the persecuted, blind poet.

Rosokhovatsky, Igor'. Read: "Desert Encounter" in *Russian Science Fiction 1968*, and "Odnim men'she" ["One Less"] in *Fantastika 1966*, part 1. Here again sf is a tool used to highlight the author's point which is in both stories a recognition of the value of the individual. In both it is solidly made, rendering the works very tendentious, but not crude or ambivalent. It is a fairly unusual theme for sf.

Rozval, Sergey. Professional writer. Read: *Nevinnye dela* [*Innocent Affair*] (1962). The title page candidly reveals this to be a *roman-pamphlet;* it is a *plakat* against the economic-military-political superstructure of the United States and for the common worker and pacifist scientist; it uses a mixture of satire, sarcasm and exaggeration in its attack.

Safronov, Y. Read: "Thread of Life" in *Russian Science Fiction 1968.* The technical part of this story is rather dubious in relation to contemporary technology. A married couple leaves in a star-ship for a sixty-year flight to another planet, following a trail of bacteria which has escaped the gravity of the other planet and found its way to Earth. Soviet sf technology either has no relation to contemporary science or has a very logical and consistent relation. This story is a bit too naturalistic. It would be more believable had it been written in the nineteenth century.

Saparin, Victor. Journalist, editor of a geographic magazine. Read: "The Magic Shoes" in *Russian Science Fiction 1963* and "The Trial of Tantalus" in *More Soviet Science Fiction.* Both works are loaded with imaginative and plausible technology, and the first in form is similar to a fairy tale. The second describes a war between Man and wayward bacteria, the main character being a sort of bacteriological trouble-shooter who travels to different parts of the world whenever a microorganism upsets the local ecological balance.

Savchenko, Vladimir. (1933-) Physicist; recently began to produce sf.

Read: "Professor Bern's Awakening" (1956) in *A Visitor from Outer Space*, "Algoritm uspekha" ["Algorithm of Success"] in *Fantastika 1964* and "Novoe oruzhie" ["The New Weapon"] in *Fantastika 1966*, part 1. In each there is a considerable amount of satire and sarcasm, but in the first two works it is apolitical, while in the last, the play, there are a number of very sharp satirical barbs which are quite political (and also quite successful). In the first story a famous professor, convinced there will be nuclear war which will destroy civilization, has himself buried in a time-capsule which will open after the war and give him the satisfaction of seeing his hypothesis confirmed. When he wakes, it seems to be, for he is chased and almost killed by a primitive, man-like creature armed with a club. In the epilogue, however, we learn that an unidentified person has been found in an experimental natural preserve of primitive flora and fauna, operated by the world academy of science.

Shcherbakov, Vladimir Ivanovich. (1938-) Finished a radio-technological institute in 1961 and works at a research facility currently; has scientific publications to his credit; began to produce sf in 1964. Read: "Krater" ["Crater"] in *Fantastika 1964*, "Plata za vozvrashchen-iye" ["Payment for Return"] in *NF*, no. 7, and "My igrali pod tvoim oknom" ["We Played Under Your Window"] in *Fantastika 1966*, part 3. All of these stories could have been written by Rod Serling for the "Twilight Zone" series. They combine just the proper amounts of the unnatural, the mysterious and the odd to make intriguing reading.

Strugatsky, Arkady. (1925-) Linguist, specializing in Japanese. He has written some sf by himself such as "Wanderers and Travellers" in *Path into the Unknown*--a story in which with rather unsubtle symbolism the point is made that something such as Reason or Intelligence studies Man as Man studies lower orders of animal life--an amusing twist. Most of his sf, however, is written with his brother, Boris Strugatsky (1933-), an astronomer. Together they have written: "An Emergency Case" in *Path into the Unknown*, "Six Matches" in *More Soviet Science Fiction*, "Spontaneous Reflex" in *A Visitor from Outer Space* and "Destination: Amaltheia" in a collection of the same title. The second and fourth could be considered a plakat of heroism in the service of science and Man; the first and third are technologically oriented adventures in which characters are wholly secondary. In "Destination: Amaltheia," we find a simple tale of a space-ship captain braving and conquering incredible dangers to bring a cargo of supplies to a satellite in orbit around Jupiter. Superb socialist-realism and humor.

Tendryakov, Vladimir Fyodorovich. (1923-) Finished the Literary Institute of Gorky in 1951; published first work in 1947; has written several novelettes, two novels and a fair amount of literary criticism; is a member of the CPSU. Read: *Puteshestvie dlinoy v vek* [*A Century's Journey*] (1965). This is an unusually good story in artistic terms. It describes inter-stellar travel by radio-wave, but the trip is not important compared to the events which surround the main character on Earth.

Tolstoy, Aleksey Nikolayevich. (1882-1945) Entered the St. Petersburg Technological Institute but did not finish; instead began to write; published some verse in 1905 and a story in 1908. He emigrated in 1918 and wrote *Aelita* just before his return in 1923; most of his work lies outside the genre of sf. Included here: *Aelita* (1922), *The Garin Death Ray* (1925) and Soyuz pyati" ["The Union of Five"] (1925) in his collected works. The last is an anti-capitalist *plakat* but is very amusing. The second novel is a similar *plakat* but contains more adventure than amusement; is is also a more polished work than *Aelita,* but not as interesting, for the first contains a genuine love-story and more engaging characters. Despite its comparatively crude level of artistry, *Aelita* is more enjoyable to read and has proved its value by being reprinted many times and by being made into a film (1924).

Tsiolkovsky, Konstantin Edouardovich. (1857-1935) School teacher by profession, but he laid the foundations for later work in the field of rocketry and space-flight. He is venerated today in the Soviet Union as the father of space-travel. Examined were "Outside the Earth" in *The Call of the Cosmos* and *Issledovanie mirovikh prostranstvykh reaktivnymi priborami* [*Investigation of Space Around the Earth by Rocket-powered Devices*], a collection of his articles.

Tsvetkov, Yury. Read: "995 - y Svyatoy" ["The 995th Saint"] in *Fantastika 1962.* This is a humorous *plakat* which assaults capitalism, religion and petty bourgeois habits of German bar-owners.

Varshavsky, Ilya. From a sailor in the Soviet merchant marine, he became a design engineer in a diesel plant; he has written more than seventy short sf stories. Included here: "Diktator" from *Novaya Signal'naya,* "Indeks E-81" ["Index E-81"] from *Luchshiy iz mirov,* "V kosmose" ["In the Cosmos"] from *Fantastika 1963,* "Dnevnik" ["The Notebook"] from the same, "The Conflict" and "Robby" from *Path into the Unknown,* "Novoe o Kholmse" ["Something New About Holmes"] from *Fantastika 1964,* "In Man's Own Image" from *Russian Science Fiction 1968* and "Lavka snovideniy" ["The Dream Shop"] from *NF,* no. 6. All of these are amusing in some fashion except "V kosmose." The first two are humorous *plakaty* against capitalism; the last five are very funny, delightful entertainments. In "Novoe o Kholmse," for example, Varshavsky adds a new twist to Sherlock Holmes who solves a very bizarre (and hilarious) mystery. When Holmes is unable to explain to Watson how the mystery was resolved, Watson regretfully places a hand on Holmes' shoulder to shut him off so that his back-panel may be removed and the wiring changed. Watson could not sell Holmes to Scotland Yard in such a condition.

Vasil'yev, Mikhail. Professional writer. Read: "Flying Flowers" in *Destination: Amaltheia.* This is a short morality-story emphasizing the need for an ecclectic appreciation of nature and one's job; narrow specialization is not always successful in geological surveys, for example. A nice touch of color was added to the otherwise drab story by the use of brightly-colored butterflies as an important

element of the plot. Vasil'yev has also written with Sergey Gushchev *Reports from the 21st Century*--a popular science-sf creation.

Volgin, Sergey (real name: Dolgopolov, Stepan Dmitrevich). Read: *Zvezdnyy bumerang* [*Starry Boomerang*] (1963), an sf novel designed primarily for the youth market, at least for those interested in science.

Voyskuynsky, Yevgeny. (1922-) Journalist; was a war correspondent in WWII; several years ago formed a partnership with Isai Lukodyanov (1913-), an engineer by trade and author of popular science articles and technical books, to write sf. Their stories which were read are: "Chyornyy stolb" ["The Black Pillar"] from *Chyornyy stolb*, "Alatyr'-kamen'" ["The Alatir Stone"] from *Luchshiy iz mirov*, "Formula for the Impossible" from *Russian Science Fiction 1968*, "Sumerki na planete Byur" ["Twilight on the Planet Byur"] from *Fantastika 1966*, part 2, and "Plesk zvezdnykh morey" ["The Gleam of Starry Seas"] from *Fantastika 1967*. The third and fourth stories are humorous space-travel adventures. All except "Alatyr'-kamen'" contain *plakat* material. The first work is a melodrama of international cooperation in which a Russian engineer sacrifices his life to save the world from doom. The last story is too stuffed with moralizing to allow print for a story plot.

Yarov, Roman. Engineer by education, journalist and writer by profession. Read: "Do svidaniya, Marsianin!" ["Good-bye, Martian"] in *Fantastika 1963*, "Pust' oni skazhut" ["Let Them Speak"] in *Fantastika 1964*, "Neizvestnaya planeta" ["The Unknown Planet"] and

"Eksperimantal'nyy kvartal" ["The Experimental Apartment"] in *Fantastika 1966*, part 3, and "The Founding of Civilization" in *Russian Science Fiction 1968*. These are quite brief stories with a humorous element in all but the second; all of them seem a bit rough, either too complex for their length or too shallow and superficial. "Neizvestnaya" is a long joke about a husband and wife who cannot decide where to vacation. The Arctic, melted by an artificial sun, is crowded and dull; Mars and Venus have bad recommendations from their friends. They decide to look for an unknown planet light years from Earth. The punch line is that at least they will be able to share their own impressions.

Yefremov, Ivan. (1907-) Professor of Geology; has written a historical fantasy *Land of Foam* and several sf stories; his *Tumanost' Andromedy* [*Nebula Andromeda* or *Andromeda*] (1957) is considered to have initiated a revival of utopian fiction in the USSR. Read: *Andromeda, Lezvie britvy* [*The Razor's Edge*] (1962), "The Heart of the Serpent" (1959) in *More Soviet Science Fiction*, and "Shadows of the Past" in *Russian Science Fiction 1963*. The second is sf in a technological sense. The third is placed in the distant future. The last is set in the technological future: fossil hunting in Siberia, where a young paleontologist discovers a mirage of a dinosaur--a natural photograph taken in primordial times by sunlight on a siliceous surface. After years of struggle, the scientist succeeds in photographing one "mirage." Artistically this, like his other works, does not equal the imagination employed. He is a very popular writer in the Soviet Union.

Yemtsev, Mikhail Tikhonovich. (1930-) Finished an institute of chemical technology in 1953; since 1955 has been involved in scientific labors and the popularization of science; in 1961 wrote his first sf story "Zaponki s kokhleoidoy" ["Signals from the Cochleous"] in partnership with Yeremey Iodovich Parnov (1935-), a candidate for chemical science and author of thirty scientific books. "Zaponki" was found in *Luchshiy iz mirov*, "Snezhok" ["Snowball"] in *Fantastika 1963* along with "Uravnenie s blednogo Neptuna" ["Equation from Pale Neptune"]; "The Mystery of Green Crossing" appeared in *Russian Science Fiction 1968*, and "Poslednyaya dver'" ["The Last Door"] in *Fantastika 1964*. In all the stories scientists grapple with technical or Nature problems; all are serious, except for the best, "Snezhok," which has a trace of humor. "The Mystery of Green Crossing" describes a "mad" computer on a far outpost of Earth which imprisons its human master and tries to force him to tell it how to reproduce itself. It burns itself out, but its master contemplates building another computer at the story's end.

Yur'yev, Z. Read: "Bashnya mozga" ["Tower of the Brain"] in *Fantastika 1966*, part 3. This is a *plakat*, but an unusually profound *plakat*--against dictatorship, against its trappings of inhumanity and perversion. It is most interesting, however, for its unique view of the construction of an ideal character for a socialist-realist narrative.

Three Soviet cosmonauts find themselves imprisoned on a planet with a robot civilization as objects of study for the planet's "master

brain," which is trying to discover an escape from the evolutionary cul-de-sac in which its society of robots who have no independent intellect or spirit is trapped. Observing the first reaction of the cosmonauts, *strakh* [*fear*], the brain instills it into a group of robots. Convinced that production is soaring (by an altered robot who now *fears* death; that is, being turned off), the brain instills the second reaction observed in the men, *nenavist'* [*hate*], into another group of robots and directs it toward the first group which is marked with blue circles. Finally, the brain instills the third reaction observed, *lyubov'* [*love*] in all the robots and directs it toward itself.

But the compulsion of all the robots to let the brain think for them has not changed to combat their passivity; the brain instills the complete personality of one of the cosmonauts into three more robots. These become independent and rebel and force the brain to surrender its authority--causing it to have a nervous breakdown.

Another robot, No. 274, who originally observed the cosmonauts for the brain, serves as an example for the transformation from souless, unemotional slave to fear-ridden victim of terror (as a member of the first group) to opposition to the terror (when he's attacked by a robot of the second group altered) to love and understanding of his fellows and a willingness to sacrifice himself for them (when he finds himself in a community of robots who have broken away from the brain's authority and is given the task of protecting some robots who are mentally disturbed).

Thus does a *poshlivyy* [vulgar, common] Russian become a New Soviet Man.

Zabelin, Igor Mikhailovich. (1927-) Finished the Geographic Faculty of Moscow University in 1948; has been in many expeditions and since 1952 has been occupied with literature; has written many stories about geographers, geography and miners. "The Valley of Four Crosses" found in *Destination: Amaltheia* is somewhat related to his profession, but *Poyas zhizni* (1960) is more closely connected. Both are highly politicized and directed at juvenile audiences.

Zagdansky, Yevgeny Petrovich. Read: *Pryzhok v bessmertie* [*Jump Into Immortality*] (1963), a propaganda novelette using the common theme of the good scientist fighting the sinister forces of finance which are trying to pervert his invention.

Zamiatin, Yevgeny Ivanovich. (1884-1937) Finished the St. Petersburg Polytechnical Institute as a marine architect in 1908; that same year published his first short story. His first novel (1914) was suppressed by the Tsarist government; he was initially sympathetic to the October Revolution but soon became antagonistic and embodied the latter attitude in *We* which was written in 1920 but not published until 1924--in English in New York City. He left the Soviet Union in 1932 and lived in Paris till his death. His novel *We* is not so much an anti-utopia as an anti-revolutionary satire and therefore should be placed in the category of negative domestic criticism.

Zelikovich, E. Read: "A Dangerous Invention" in *Russian Science Fiction 1963*. A professor invents a device that can cleanse the air of pollution by destroying the adhesiveness of air molecules so they will not support any particles. Some TB victims seize the machine and try to operate it without knowing how. The characters' names are: Rheostatov, Switchkin, Ampersky, etc.--referring to their occupations. It is a very amusing story and could have been written by Belyaev if he had had a sense of humor. Presumably it was written in the 'twenties or 'thirties.

Zhitomirsky, S. Read: "Proekt - 40" ["Project 40"] in *Luchshiy iz mirov*. A young student, fascinated by geology and drilling exploration, becomes involved in a practical joke on the scientist who directs the drilling project he wants to join. Mortified, the student abandons his dreams and becomes a machine-designer. A few years later he visits the drilling site which is now operating successfully because of an idea he gave the scientist when he repaired her shoe sole. What is the point? That the student's dreams were realized despite himself?

Zhuralyova, Valentina. (1933-) Doctor by profession. Read: "The Astronaut" in *Destination: Amaltheia,* "Stone From The Stars" in *More Soviet Science Fiction* and "Storm" in *Russian Science Fiction 1968*. The second and third stories have a clear relation to her profession, one being a tale of a bio-chemist trying to save the "life" of a living, artificially-made brain carried in a hollow

meteorite just impacted on Earth. In the other, "Storm," the best of the three, a young medical scientist tries to perfect a "pain analyzer" to diagnose illness.

Zubkov, B. and Muslin, Ye. are engineers by education and journalists by trade. Together they have written "Siniy meshok" ["The Blue Sack"] in *Fantastika 1964*, "Neprochniy, neprochniy, neprochniy mir" ["The Temporary World"] in *Fantastika 1966*, part 2, "Roboty ulybayutsya" ["Robots Smile"] in *Fantastika 1966*, part 3 and "Korifey, ili umenie diskutirovat'" ["The Know-it-all, Or the Ability to Discuss"] in *Fantastika 1967*. The first two are anti-capitalist *plakaty*, the second, however, being humorous. The last two are creations of unadulterated amusement.

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APPENDIX

APPENDIX

The space-ship constructed by Los' in Tolstoy's *Aelita* appears to have originated in the design suggested by one of the characters in Tsiolkovsky's "Outside the Earth"; the characters in that story ultimately used another design, but the original, as embellished by Los', offers an illuminating description of the combination of imaginative and plausible sf technology used by authors in the 'twenties.

The apparatus is described during a visit of a newspaperman to Los' before the latter launched himself and Gusev toward Mars:

> The egg-shaped apparatus was not less than eight and a half meters high and six meters across. Halfway up the apparatus, a metal band circled around it, bent out and down, like an umbrella--a parachute brake. . . . The lower part of the egg ended in a narrow throat. A double spiral of massive steel, turning in opposite directions, surrounded it--this was a buffer to soften the landing impact.
>
> The ship was constructed from resilient and refractory steel, well-strengthened from the inside by ribs and supports. This was the outer shell. Inside it was a second shell of six layers of resin, felt and hide. Inside the second quilted hide . . . were the observational and motive apparatus, oxygen tanks, boxes for the absorption of carbon dioxide, hollow cushions for instruments and provisions. . . .
>
> The engine was located in the throat. . . . [which] was cast of a metal harder than astronomic bronze. Vertical canals were bored into the throat. Each of them widened upwards into a so-called explosive chamber. Into each chamber was introduced a spark from a common magneto and a fuel pipe. . . . the explosive cells were fed with ul'traliddit. . . . there was a reserve of ul'traliddit for a hundred hours. The rate of ascent and descent of the ship could be regulated by decreasing or increasing the number of explosions per second. The lower part of the ship was significantly heavier than the upper; therefore, when entering the gravity-field of a planet the ship would always turn with its throat towards the planet.[1]

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[1]A. Tolstoy, *Sobranie sochenenіy* (Moscow: Khudozhestvennaya literatura, 1956), III, pp. 541-542.

On the next page is an illustration of a rocket sketched by Tsiolkovsky (1933); it is very simple, but it reveals some of the consideration he focused on space travel. It is only one of many descriptions he constructed of space-ships.

The numbers identifying different parts of the vessel are given below:

1. Flat wings. Because of the narrow wing-span they will not be heavy and because of their length along the projectile, they will not be thick. They will be effective at high velocities rather than low. They must be flat.

2. Part of the mobile scales [made of a shiny material]. Set perpendicularly to the rocket, they will expose the surface of the rocket and lower its temperature. The more parallel they are to the rocket, the smaller will be the loss of heat. . . . windows, turned toward the sun's light, should not be covered by scales if the temperature in the rocket is to be raised. During the flight through the atmosphere, the scales must be flattened against the side; regulation of temperature is impossible . . .

3. Seating for people.

4. The impenetrable strong shell of the rocket which must contain a pressure of at least one atmosphere.

5. Scales pushed together (like a fan).

6. Small motor.

7. Pumps for pumping oxygen and fuel.

8. The place where the elements for explosion are mixed (carburator).

9. Conical pipe. From the wide opening rarified and cold gases are exploded with a relative velocity of 3 - 6 km/sec. This speed is constant for each apparatus.

10. Two vertical and two horizontal rudders. These are rudders of direction and stability. They will work in a vacuum thanks to the products of combustion expelled against them.

5. Чешуя сдвижная (как веер).
6. Место небольшого мотора.
7. Насосы для накачивания кислорода и нефти.

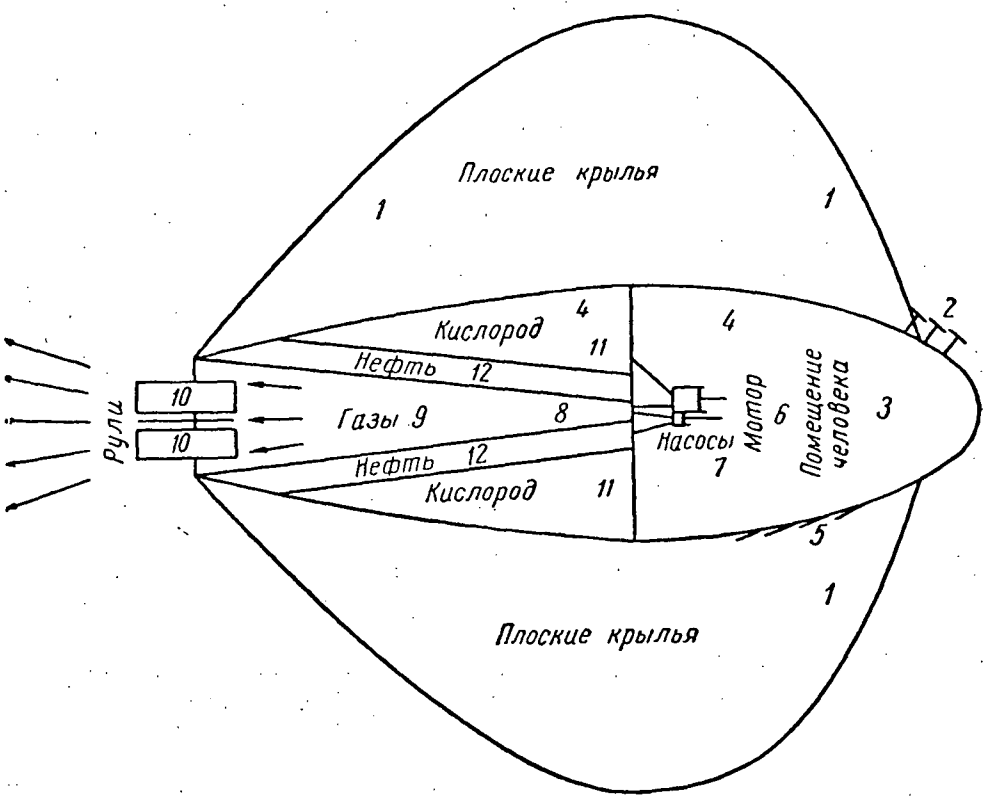

Рис. 1

8. Место смешения элементов взрыва (карбюратор).
9. Коническая труба. Из широкого отверстия вырываются разреженные и холодные газы с относительной скоростью 3—6 *км/сек*. Эта скорость для каждого прибора постоянна.
10. Два руля отвесных и два горизонтальных. Эти рули направления и рули устойчивости. Рули работают в пустоте благодаря стремительно вылетающим продуктам горения.

11. Liquid oxygen.

12. Benzine.[2]

Subsequently, Tsiolkovsky suggests that liquid oxygen, because of its storage difficulties, be replaced by nitric anhydride (NO_2).

The next two pages detail the hyperboloid of A. Tolstoy's *The Garin Death Ray*. Modern lasers use an artificial crystal to produce a beam of cohesive light, but Tolstoy's idea of the uses of the ray is essentially correct. Ray weapons, of course, did not originate with him, but his attempt to create a laser with the technology he knew is another instructive example of imaginative and plausible sf technology. Authors in the 'twenties frequently used such explanations to increase the realistic appearance of their tales.

The last page is reproduced from a paperback book by Robert Heinlein. He composed it in 1940 to avoid confusion in the chronology of his stories which contain various technical developments and are set in different time periods. Heinlein is one of the most popular American sf authors and the only one who has tried to create the next six hundred years of history through a series of stories. His is not a serious sociological consideration of the future, for he is mostly concerned with scientific development (and writing good stories). It is difficult to accept without a chuckle those facets of our contemporary culture which he does intensify artistically.

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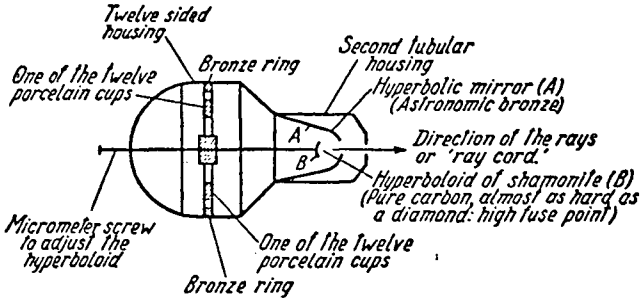
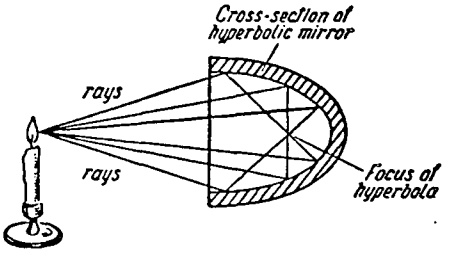
[2]K. Tsiolkovsky, *Issledovanie mirovykh prostranstvykh reaktivnymi priborami* (Moscow: Mashinostroenie, 1967), pp. 319, 320, 322.

opened out a drawing about half the size of a sheet of newspaper. "You want me to risk everything in this game as you do, Zoë. Look here. This is the general scheme.



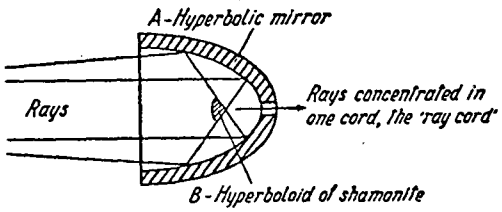
"It's as simple as ABC. It's the purest accident that nobody discovered it before me. The whole secret is in this hyperbolic mirror (A), shaped like the reflector in an ordinary searchlight, and this piece of shamonite (B), also made in the form of a hyperbolic sphere. The hyperbolic mirror functions in this way:



"Rays of light falling on the inner surface of the hyperbolic mirror meet at one point, at the focus of the hyperbola. This is common knowledge. Here is something new: in the focus of the hyperbolic mirror I place a second hyperbola (B) in reverse, as it were, in relation to the

other—this is the revolving hyperboloid, turned from shamonite, a mineral that polishes well and has a very high fuse point—there are inexhaustible deposits of it in the north of Russia. What happens to the rays?

"The rays concentrated at the focus of the mirror (A) are directed on to the surface of the hyperboloid (B) and are reflected from it geometrically parallel—in other words the hyperboloid (B) concentrates all the rays into one ray, or into a ray cord of any thickness. By turning the micrometer screw I adjust the hyperboloid (B) and can produce a ray of any thickness.



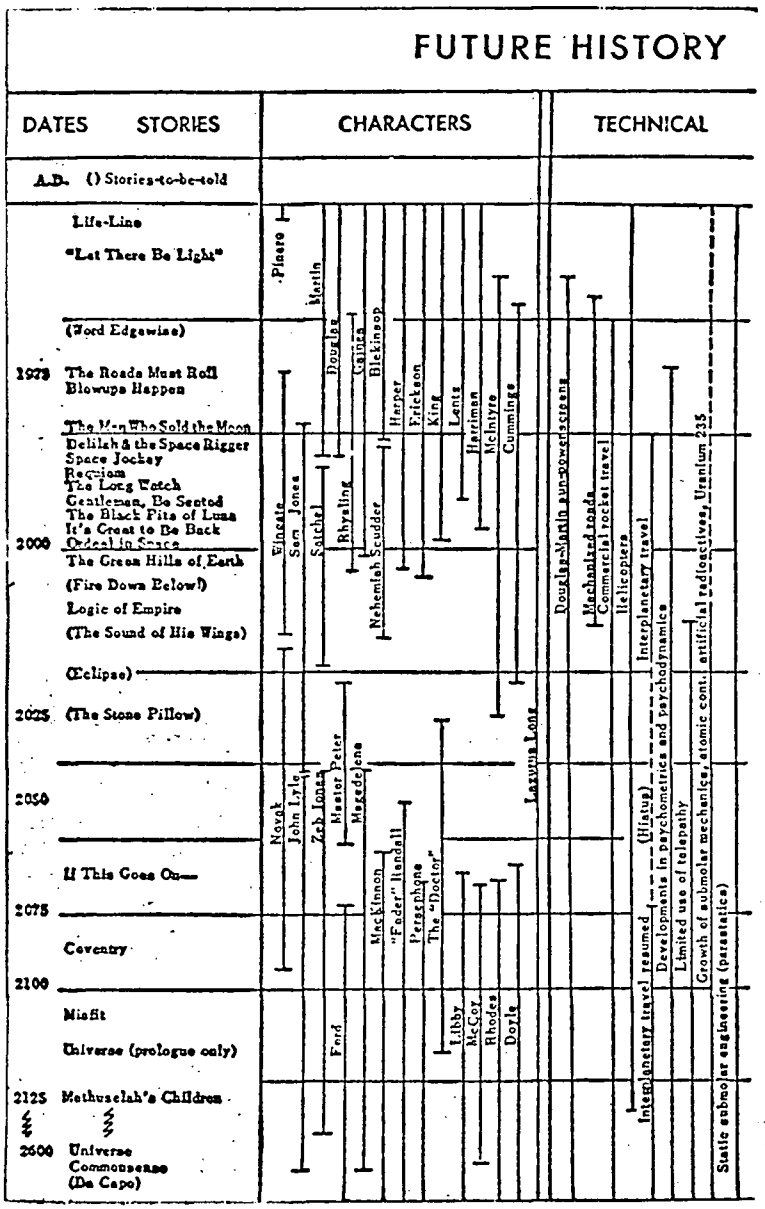
"The energy lost by transmission through the atmosphere is negligible. In actual practice I can reduce the 'ray cord' to the thickness of an ordinary needle."

Hearing this Zoë got up, pulled and cracked her fingers, and sat down again, clasping her knee.

"For my first experiments I used ordinary tallow-candles as the source of light. By adjusting the hyperboloid (B) I reduced the ray to the thickness of a knitting needle and easily cut through an inch board with it. Then I realized that the whole secret lay in the discovery of sufficiently powerful but compact sources of radiant energy. Three years of work which have cost the lives of two of my assistants have produced these carbon pyramids. There is so much energy in these pyramids that if I place them in the apparatus and light them (they burn for about five minutes), they give me a 'ray cord' powerful enough to cut through a railway bridge in a few seconds.... Do

FUTURE HISTORY

1951-2600 A.D.



DATA	SOCIOLOGICAL	REMARKS
	THE "CRAZY YEARS"	Considerable technical advance during this period, accompanied by a gradual deterioration of mores, orientation and social institutions, terminating in mass psychoses in the sixth decade, and the Interregnum.
Transatlantic rocket flight	Strike of '66 The "FALSE DAWN," 1960-70 First rocket to the Moon, 1978	
Antipodes rocket service	Luna City founded Space Precautionary Act Harriman's Lunar Corporations PERIOD OF IMPERIAL EXPLOITATION, 1970-2020 Revolution in Little America Interplanetary exploration and exploitation American-Aurivalerian anschluss	The Interregnum was followed by a period of reconstruction in which the Voorhis financial proposals gave a temporary economic stability and chance for re-orientation. This was ended by the opening of new frontiers and a return to nineteenth-century economy.
Bacteriophage The Travel Unit and the Fighting Unit Commercial stereoptics	Rise of religious fanaticism The "New Crusade" Rebellion and independence of Venusian colonists Religious dictatorship in U. S.	Three revolutions ended the short period of interplanetary imperialism: Antarctica, U. S., and Venus. Space travel ceased until 2072.
		Little research and only minor technical advances during this period. Extreme puritanism. Certain aspects of psychodynamics and psychometrics, mass psychology and social control developed by the priest class.
Booster guns Synthetic foods Weather control Wave mechanics The "Barrier"	THE FIRST HUMAN CIVILIZATION, 2075 et seq.	Re-establishment of civil liberty. Renascence of scientific research. Resumption of space travel. Luna City refounded. Science of social relations, based on the negative basic statements of semantics: Rigor of epistemology. The Covenant.
Atomic "tailoring," Elements 98-416 Parastatic engineering.		Beginning of the consolidation of the Solar System.
Rigor of colloids Symbiotic research Longevity		First attempt at interstellar exploration. Civil disorder, followed by the end of human adolescence, and beginning of first mature culture.